

Surgery

The Surgical Treatment of Mitral Stenosis

With Emphasis on Case Selection

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The dramatic relief afforded some thousands of patients by the surgical release of mechanical obstruction at the mitral valve has clearly established mitral commissurotomy in the treatment of this disabling and frequently fatal disease. The operation is not indicated in every patient. In some the degree of obstruction effects no functional derangement of consequence. In others the lungs and right ventricle have been so severely and irreversibly damaged by the effect of the valvular obstruction, that correction of the latter will not halt the progressive deterioration of the patient. It is, however, of fundamental importance that every patient with mitral stenosis be critically studied in order that the role of surgery in the over all therapeutic program be determined. The resulting obligations are two-fold: there must be no uncritical enthusiasm by the surgeon, and the physician must not be reluctant to recognize the benefits of surgery.

History

In 1902 Sir Lauder Brunton, in an historical article in *Lancet*, advocated surgery as the only definitive corrective measure in mitral stenosis.¹ The genius and perspicacity of this physician is apparent when we note that he advocated that "mitral orifice should be enlarged by elongating the natural opening." This is essentially today's operation. He did, however, offer a "less desirable, but easier" alternative; namely to enlarge the opening by incision of a leaflet.

Some twenty years later a group of distinguished surgeons in America operated upon 9 patients; 8 died almost immediately following surgery.² The leaflets themselves had been incised and serious regurgitation resulted. The less desirable, but easier, alternative of Brunton had been used. Violation of leaflet integrity produces regurgitation, major degrees of which are always fatal. Due to the eminence of these workers and their belief that stenosis could be relieved only by the substitution of regurgitation, interest in the surgery of this disease lapsed. In 1946, C. P.

Bailey perceived the principle that is universally accepted today; namely, that obstruction must be corrected by effecting separation of the leaflets at the line of pathological fusion. This restores leaflet mobility without producing regurgitation. Thus, Bailey brilliantly enlarged upon and gave rationale to the method preferred by Brunton.^{3,4}

The Course of Mitral Stenosis Without Surgery

Contemplation of the life cycle of mitral stenosis reveals the inadequacy of medical management alone. Although many patients, at a given stage of the disease appear to be running a relatively benign course, many eventually die from the effects of the obstruction. It has been found⁵ that heart failure caused death in 44% of cases, and in an additional 44% fatal peripheral or pulmonary emboli occurred. That this outlook leaves much to be desired requires no emphasis. Results of large series of successfully operated patients so far indicate that these disastrous consequences can be averted.

Extensive studies⁶ of the altered physiology attending mitral stenosis have shown that, initially, the right ventricle functions normally. It pumps blood into the pulmonary circulation whence its egress is hindered by the narrowed valve orifice. Engorgement of pulmonary capillaries ensues with consequent pulmonary symptoms of dyspnea, coughing and hemoptysis. These symptoms indicate a high grade stenosis of the mitral valve and that the patient is under the constant hazard of potentially fatal pulmonary edema. These studies have shown that during this stage changes in the pulmonary arterioles may occur and lead to a second zone of obstruction. This additional obstructive factor results in an increase in pulmonary artery pressure. The work of the right ventricle is thereby increased and its failure eventuates. Obviously, surgical intervention is desirable before this stage is reached.

Case Selection

The technical aspects of commissurotomy are well standardized. The major difficulty today is one of case selection. The cardiac catheterization studies of Gorlin indicate that the mitral valve orifice may be reduced from a normal of 5 sq. cm. to 2 sq. cm. with inconsequential effect on cardio-pulmonary function. The only evidence of the disease at this stage is the murmur, and surgery is unnecessary. The presence of symptoms has been associated with valve orifices of even smaller size. This obstruction can only be corrected by

operation. Although the patient may learn to live with dyspnea, cough, and fatigue, surgery should be done to prevent the complicating ravages on the lungs, myocardium, liver, and body tissues generally, and to reduce the hazard of thromboembolism.

Before operation is decided upon, one must carefully consider the patient's present status and prognosis without operation, the risk of, and the results to be obtained from surgery. Each patient is an individual problem and all the many factors which affect the above considerations must be weighed. Discussion of these factors follows:

1. Rheumatic Fever—Leaflet adherence is due to the edematous valvulitis of rheumatic fever. Obviously, active carditis or recent rheumatic activity contraindicates surgery. If the leaflets are well mobilized at operation, restenosis does not occur in the absence of rheumatic activity.

2. Age—In young patients, death is usually from rheumatic myocarditis and not from mechanical obstruction. Recurrence of rheumatic fever is common during the first two decades. These facts demonstrate that surgery is rarely indicated during this period. In the early phases of mitral surgery, patients over 50 years were excluded from operation. However, one of us has operated on a man of 57 who was incapacitated by mitral stenosis and who now leads a productive life.

3. Subacute Bacterial Endocarditis—The presence of this complication prohibits surgery. The history of clinical cure by antibiotics has not been contraindicative of commissurotomy. However, the possibility of achieving adequate leaflet mobility is not good and the danger of recurrence of the infection following operation calls for caution in recommending it.

4. Associated Valvular Lesions—Observations at the time of operation have shown that a valve may be altered by disease to produce a murmur, but without functional effect. Hence today, we must diagnose the functional significance of various valvular lesions, and not merely their presence. A drastic reappraisal of the significance of heart murmurs has resulted. In some circumstances the character of heart sounds may be of greater importance than the murmurs produced.

Mitral regurgitation may be associated with stenosis. If the former is functionally significant, commissurotomy should not be recommended. Mitral regurgitation has been traditionally recognized by an apical systolic murmur; however, the latter may exist with a functionally pure stenosis. The adherent leaflets neither open nor close. A small jet of blood, passing from the ventricle into the auricle on systole, produces a loud systolic murmur. This can obtain in a person dying of mitral obstruction which is amenable to surgical correction. When mobilized by operation, the

leaflets not only open but close more efficiently. If a significant amount of blood is regurgitating from the left ventricle, the latter enlarges. The demonstration of this enlargement is of great value in the diagnosis of mitral regurgitation and contraindicates commissurotomy.

Aortic valvular disease may produce murmurs which are of no functional significance. Such murmurs in themselves do not contraindicate operation. However, when functionally significant aortic involvement is present, left ventricular enlargement results, warning against mitral commissurotomy.

5. Congestive Heart Failure—Many successfully operated patients present a past history of this complication. However, its presence, when uncontrolled by medical treatment, should prohibit surgery.

6. Auricular Fibrillation—It has been shown that this finding points to a high grade stenosis (a valve orifice of 1 sq. cm. or less). It is most commonly found in a more advanced stage of the disease. An auricular thrombus is present in a considerable number of these patients. These facts make the prognosis without surgery poor, both from the danger of cardiac failure and thromboembolic phenomena. Mitral commissurotomy in the presence of this arrhythmia carries a higher risk than in patients with normal sinus rhythm because of the more advanced stage of this disease and the risk of thromboembolism in relation to surgery. Due to the severity of the obstruction surgery provides, however, the only satisfactory solution, and it is not surprising that approximately 50% of the reported operated patients have had chronic auricular fibrillation.

7. History of Embolism—This factor strengthens the indication for surgery. Embolism results from the dislodgement of a fragment of thrombus located in the auricle. Successful surgery will reduce the factors which promote thrombosis. (a) The auricular stagnation is obviated when the valve is opened. (b) Conversion to normal sinus rhythm may be achieved postoperatively. (c) The appendage, an important nidus for thrombi, is amputated as a step in the operation. In a personal series of operations, 9 out of 29 had a history of embolism. In this group there were no deaths and no embolic phenomena during surgery, and no recurrences since then. It is hoped that successful mitral commissurotomy will prevent future embolism.

8. Pregnancy—Mitral commissurotomy may be carried out during the first trimester; pregnancy then proceeding uneventfully. In over 30 reported cases, the results have been excellent and indicate that commissurotomy is preferable to therapeutic termination.

9. Radiography—A patient has not been evaluated until X-ray and electrocardiograms have been

taken. Multiplane films and fluoroscopy yield the following data:

(a) **Left Auricular Enlargement** — Either aneurysmal dilatation or paradoxical pulsation of this chamber should contraindicate commissurotomy, being indicative of significant mitral insufficiency.

(b) **Left Ventricular Hypertrophy** — It is possible to recognize enlargement of the left ventricle when the right ventricle is normal in size. However, when the right ventricle is large, co-existent enlargement of the left ventricle can not be diagnosed by X-ray examination. Study of cardiac anatomy at operation has rendered obsolete many classical radiographic tenets pertaining to chamber size.

(c) **Heart Size** — This is a most important factor. Many patients have died in pulmonary oedema due to mitral stenosis with a normal cardiothoracic ratio. Dexter had indicated that enlargement does not occur until complicating pulmonary arteriolar change results. Hence, one must not be misled into inactivity because the heart is not enlarged. When the heart is so "enlarged" that the left heart border reaches the rib cage, the patient is inoperable, being possessed of a dilated heart, the myocardium of which is hopelessly damaged.

10. **Electrocardiography** — A complete electrocardiographic study is an integral part of the assessment. It aids in the diagnosis of hypertrophy of one or both ventricles, and in the recognition of arrhythmias and active carditis. It is probably the most reliable method of identifying left ventricular hypertrophy, which, as pointed out above, constitutes an invariable contraindication to mitral commissurotomy alone.

11. **Cardiac Catheterization** — This has been used in the study of the disease and the results of surgery, but the hope that it would be helpful in diagnosing mitral regurgitation has not materialized. Routine use of this procedure is unnecessary.

Surgical Technique

With the patient lying in the lateral position, the left chest is widely opened. Wide exposure greatly increases the safety factor of any operation and this principle is of value here.

The innominate and common carotid arteries are dissected out at their aortic origin and by means of the technique of Bailey, these vessels are occluded to prevent cerebral embolism which is an important hazard during surgery. The emboli arise by dislodgement of a portion of auricular thrombus or calcium from the diseased valve by the surgeon's finger. The occlusion is intermittent, never exceeding 90 seconds. Intracardiac manipulation is performed only during a period of occlusion. In the operations performed by one of us no cerebral emboli have occurred,

although auricular fibrillation pre-existed in the majority, and nine patients had a past history of cerebral embolism. Freedom from the latter is attributed to this procedure.

The pericardium is opened and the auricular appendage is gently clamped. Distal to the clamp an incision is made to accommodate the index finger. As the clamp is released, the finger is introduced into the left auricle. The appendage has no function and, being a common nidus of thrombus, has a sinister pathologic reputation. It does, however, provide the surgeon with a simple, safe, and almost bloodless approach for intracardiac procedures.

The blood loss is measured carefully throughout the operation. During a personal series of 29 cases, it varied between 140-600 cc. and transfusion during operation was used in only 5 instances. The blood loss is much less than in most major operations. Accurate knowledge of blood loss is a vital requisite. Hypotension may occur during commissurotomy; the cause is usually anoxia, and the administration of blood to these patients whose pulmonary circulation is already engorged, could have a disastrous consequence.

The surgeon explores the left auricle and mitral valve with his index finger. The lines of pathologic fusion of the leaflets—the commissures—are identified. The latter are widely opened by digital pressure or surgical incision, using a special instrument placed along the finger. In many cases the leaflets are mobilized by the former. The finger is withdrawn as the clamp is replaced and the major portion of the appendage is amputated; its base being closed with continuous sutures.

In a seriously ill patient, anaesthesia and thoracotomy result in a degree of anoxia. Correction of the latter will occur promptly when the valve is opened. Accordingly, the period between induction of anaesthesia and correction of the obstruction must be minimized. Using current techniques, the chest may be opened quickly and in the usual case the steps preceding the opening of the valve may be performed in a few minutes. In a recent operation, cyanosis and hypotension followed anaesthesia. In twenty minutes the valve was opened with immediate marked improvement. The only two deaths in a personal series of 28 cases occurred in seriously ill patients, where the valve could not be opened with dispatch. The excessive periods of anoxia produced irreversible changes. In one patient, the appendage was a small calcified mass, necessitating use of the superior pulmonary vein to enter the heart. The latter approach is much more time-consuming. A similar problem existed in the other fatality.

Results

Mortality Rate — In a series of 28 commissurotomies performed by one of us, there have been the two deaths referred to. An additional patient,

with extensive auricular calcification which made commissurotomy impossible, died on the fourteenth post-operative day, suggesting that a seriously ill patient will not tolerate operation if no physiological improvement results. A review of Bailey's series⁷ reveals an over all mortality rate of 7.9%. This figure is of special importance because it included deaths in the developmental stage. In an ideal candidate the mortality rate has been 3%.

Benefits—Many series of operations are available and the results are most encouraging. In Bailey's large series, as of February, 1954, "marked improvement" occurred in 45%, "improvement" in 45%, "no change" in 5% and 5% were worse. The latter 5% include cases where restenosis occurred. The latter is due to recurrence of rheumatic activity or failure to achieve mobility in far advanced cases with totally stiffened leaflets.

Summary

1. Commissurotomy has gained universal acceptance as a vital adjunct in the treatment of mitral stenosis.

2. In every patient with mitral stenosis, the role of surgery in the over all programme must be determined.

3. The presence of progressive symptoms indicate a high grade stenosis, the definitive treatment of which is commissurotomy.

4. The aims of surgery are (1) the relief from symptoms and functional restrictions, and (2) the prevention of the serious sequelae of the valve obstruction.

5. Rheumatic infection, subacute bacterial endocarditis, uncontrolled heart failure, and associated functionally significant valvular lesions, contraindicate mitral commissurotomy alone. It follows that left ventricular hypertrophy is an important contraindication.

6. When the heart is greatly "enlarged," the myocardium is irreversibly damaged and surgery has no place.

7. Great care is taken to avoid cerebral embolism during operation.

8. The auricular appendage provides an excellent approach for intra-cardiac surgery.

9. Gravimetric estimation of blood loss is used routinely. The loss is much less than that encountered in most other major operations.

10. The principles in commissurotomy are

sound; hence it is not surprising that the results are good and the risks are small.

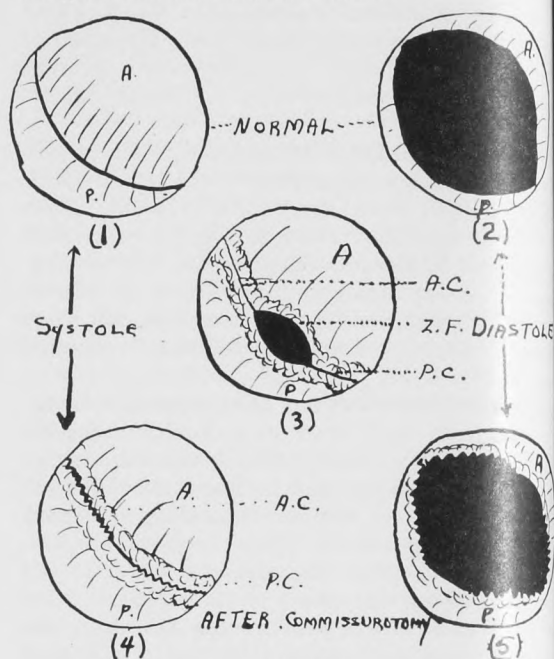


Figure 1

The principles of mitral commissurotomy. The mitral valve viewed from above, the outer circle representing the valve ring.

1. The large antero-medial (A), and small postero-lateral (P) leaflets meet along their free margins in systole.

2. The leaflets swing apart during diastole.

3. In mitral stenosis, a zone of fibrosis (Z.F.) is present along the free margin; the large part of the leaflet is normal. The lines of adherence of the leaflets are the anterior and posterior commissures (A.C. & P.C.). The leaflets cannot separate during diastole and often do not close completely during systole.

4. Following surgery, the leaflets meet well in systole.

5. The mobilized leaflets part during diastole. The jagged lines indicate where the adherent leaflets have been separated along their commissures.

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Ophthalmology

Retrolental Fibroplasia

W. C. Guest, M.D.

Retrolental fibroplasia is a disease affecting the eyes of premature infants. It was first described in 1942. Since then it has increased alarmingly in many centres until it is now said to be the commonest cause of blindness in pre-school children. Several cases have occurred in Manitoba in the past two years. Our knowledge of this condition has advanced sufficiently that a brief review of the subject is indicated.

The disease is confined almost entirely to premature infants. The incidence is inversely related to the birth weight. It is generally agreed that no evidence of the disease is present at birth. It is bilateral with very few exceptions.

The geographical distribution of retrolental fibroplasia is interesting. It was first described in Boston, followed shortly by cases in New York and the east coast states. Chicago then entered the picture and now cases are widely distributed all over the United States. Vancouver reported the first Canadian cases followed by Montreal and now it is found all across Canada. An interesting and probably important fact is that retrolental fibroplasia usually appears first and in greatest numbers in the large, first-class teaching hospitals where prematures receive extra special care.

The first signs of retrolental fibroplasia usually appear between three and six weeks of age. After three months of age onset of the disease is unusual. The first consistent visible change in the retina is dilatation and tortuosity of the retinal veins. This is followed by the appearance of retinal hemorrhages and clouding of the vitreous. Then the periphery of the retina becomes edematous. New vessels make their appearance in the periphery followed by retinal detachment which gradually spreads until the entire retina is detached. The end stage is reached when the retina becomes incorporated in a dense, fibrous membrane lying behind the lens; the eye being totally and permanently blind. Cataract formation and glaucoma may be late complications of the cicatricial stage.

Retrolental fibroplasia is a self-limited disease. Progression may stop at any stage. Fortunately the majority of cases stop short of detachment of the retina. Such cases undergo complete remission with reversal of the visible changes and subsequent normal development of the eye. Once the stage of retinal detachment is reached permanent changes in the eye must be expected. If the detachment is limited to the periphery then the subsequent fibrosis may leave some useful vision. When complete detachment occurs the

process almost invariably results in the complete picture of retrolental fibroplasia with permanent blindness.

The cause of this distressing condition must be still considered as unknown. Many interesting and some imaginative theories have been advanced. The fact that this is a new condition must be kept in mind when considering its cause. Suspicion is at once directed to some infectious agent or to some change in pre-natal or post-natal care. Aside from its geographical distribution there has been no evidence indicating infection as a possible cause.

Suspicion is strong therefore that some change in the management of premature infants is responsible. Detailed investigation has revealed no correlation with any known maternal factor including the use of newer drugs in pre-natal care or at delivery. Similarly no relationship can be demonstrated to any of the various causes of premature birth. The fact of prematurity itself rather than the cause of prematurity is the significant factor. The incidence of the disease has increased out of proportion to the increased survival rate of premature infants receiving modern care.

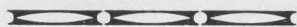
Three aspects of modern premature care deserve special consideration. The number of blood transfusions given prematures has increased significantly in recent years. Opinions are divided concerning blood transfusions as a significant factor. The higher electrolyte content of cows milk formulas compared to human milk may be a factor, although again opinion is divided. An increasingly impressive amount of evidence is accumulating which implicates excessive use of oxygen as an important factor in the cause of retrolental fibroplasia.

The amount of oxygen used and the efficiency with which it is used have both increased in recent years. Reports from several parts of the world indicate that the disease made its appearance after oxygen was used freely in the care of prematures and further that the incidence has dropped sharply following restriction of oxygen. Locke from Montreal has reported recently a series of 124 prematures in which oxygen administration was kept at minimum levels. Only two mild cases developed instead of an expected incidence of thirty-two from previous experience. His figures show a strong correlation between the amount of oxygen used and the incidence of the disease.

In spite of the strong evidence implicating oxygen it cannot be said yet that administration of excessive amounts of oxygen is the sole cause of the disease. Some cases have developed in

which no supplementary oxygen was given. There may well be some other factor relating to individual susceptibility. Nevertheless the evidence against oxygen is sufficiently strong that those charged with the care of premature infants should ensure that no more oxygen is used than that necessary to combat cyanosis. When used it should be for as short a time as possible and administration tapered off gradually rather than abruptly. It is a thought provoking fact that those reporting reduction of the incidence of retrolental fibroplasia by limiting oxygen do not report any reduction in premature survival rates. One author reports that the infants were in better general condition when oxygen was restricted. Time may prove that many premature infants have been blinded by kindness.

Cancer



Cancer? Nuthin' To It!*

The diagnosis of cancer for the G.P. is really one of the easiest things in the world. Also it is the one field in which the G.P. can cover himself with glory, because he will never be held accountable if he makes the only error he should make—to suspect cancer and not find it.

Moreover, with commonsense, he can increase the time available for reading the things he wishes to read instead of accumulating useless knowledge on cancer.

When I was young I read omnivorously every bit of literature on cancer on which I could lay my hands. I attended Tumor Clinics and listened to Postgraduate work. Truly, I thought, here is my golden opportunity to save lives. Why, at one time I even knew how to spell Papin—Papan—Pappi—well, you know who I mean—without even looking it up. But no more.

Now I never do more than scan the latest therapy or diagnostic procedures. Why? Because I have found that I never applied what I learned. Heresy? Read on. Now, all I do is ask myself, "Could this patient have a CA?" For example, the case of the young lady who said she "coughed" blood that dripped from her nose. Yet she presented no evidence of bleeding. Nasal examination revealed nothing, but a laryngeal mirror showed something suspicious. So off I sent her to

an E.N.T. man, and later he found that she had a CA of the nasopharynx. Another case was a young man of 30 with a cigarette cough, whom I had x-rayed despite his protestations, to find a CA of the lung. One year later, his pneumonectomy is apparently successful. Why did I find a CA in these two patients? Merely because I had raised my "Index of Suspicion."

I have a long list of things that I must run out for each patient, and cancer heads the list. Differential diagnosis, we are told, is a matter of thinking of possibilities and then ruling them out. Yet all of us are guilty at times of dogmatism, saying "This can't be cancer," only because we refuse to believe that it can be. We decry the fact that patients refuse to seek early medical care for cancer. We say they wait too long, that the golden moment has passed, and yet when they present themselves to us early we do not investigate all the possibilities.

How many pelvic examinations do we think of and then put off because we are too tired? How many rectals have we planned yet neglected to do, for one reason or another? These are simple basic procedures that we avoid because our "Index of Suspicion" is still too low. Once cancer is suspected, the proper steps to take to confirm or disprove it are simple. I do not need a book to biopsy or Gelfoam a cervix. I do not need a 3 or 5-day course on cancer to send a chronic laryngitis to a nose-and-throat man. I don't even need an M.D. degree to send a cough or gastro-enteritis to a radiologist. The only thing I must remember to do is to ask myself, "Could this patient have a CA?" Raising the "Index of Suspicion" can lead the G.P. into only one embarrassment—contradiction by the specialists' negative reports.

Perhaps I have oversimplified the situation but what I am trying to say in essence is that since the diagnosis of cancer is made eventually by the pathologist, the radiologist, or the surgeon it is a simple thing to suspect and then refer the patient to the specialists and let them do the work. It is their job.

The important thing for the G.P. to do is to raise his "Index of Suspicion." So, when my colleagues talk at length on a diagnosis of cancer my reply is "Cancer Diagnosis? Nuthin' to it."

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*We are grateful to the publishers of Current Medical Digest, for granting us permission to reprint this article.

Case Reports

Esophageal Atresia With Tracheo-Esophageal Fistula

A Report of Two Cases Successfully Treated by Surgery*

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During the first two months of 1954 two infants born with esophageal atresia and tracheo-esophageal fistula were successfully treated by surgery at the Winnipeg Children's Hospital. This congenital abnormality is usually considered to be very rare, but, in fact it is not. Gray Turner¹ believes that congenital atresia of the esophagus occurs once in approximately 2,500 births or with about the same frequency as cleft-lip and cleft-palate. Since early recognition of the condition greatly improves the chances of successful surgical correction, it was considered that it might be of value briefly to review the nature of the condition, its recognition, and its surgical treatment.

Esophageal atresia is a congenital absence of the midportion of the esophagus. The upper esophageal pouch ends blindly at the level of the third or fourth dorsal vertebra. There is usually a very short distal esophagus connected to the stomach. While esophageal atresia may occur as an isolated defect, it is commonly associated with a tracheo-esophageal fistula. The various types of esophageal atresia and tracheo-esophageal fistula are illustrated in the accompanying diagram. (Fig. 1). In over 90% of cases, type three is encountered; the upper esophageal pouch ends blindly and has no communication with the trachea whereas the lower pouch has a tracheo-esophageal fistula. The esophageal ends are separated a vari-

able distance. In some infants they may be close together, while in others the two may be many centimeters apart.

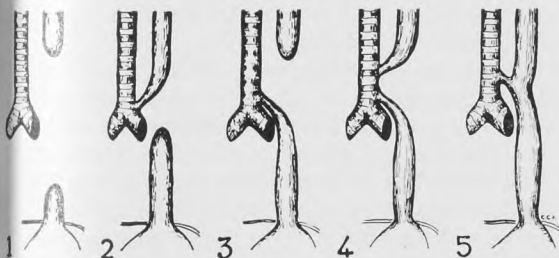
Certain facts about normal embryologic development afford some explanation for the occurrence of these congenital malformations. In early fetal life, the esophagus and trachea are one tube, which subsequently becomes divided into two structures by a lateral ingrowth of mesoderm. After this division, the lumen of the esophagus becomes obliterated by a proliferation of its epithelial lining. Later, as this solid cord becomes vacuolated and coalescence of the vacuoles occurs, the lumen of the esophagus is re-established. It appears likely that during the period of separation of the single tube into the esophagus and trachea that fistulas develop. Atresia is probably related to incomplete coalescence of the vacuoles.

Signs and Symptoms

Since infants born with esophageal atresia cannot swallow their saliva and naso-pharyngeal secretions, there is an accumulation of mucous in the mouths of these infants. Episodes of cyanosis and respiratory difficulty are common and are due to aspiration of this mucous. If attempts at feeding are carried out, the infant will usually take the feeding hungrily for the first few swallows, then will begin to choke, cough, frequently will turn blue and will bring up the feeding. If repeated attempts at feeding are made, the child eventually develops serious pneumonia, which in the untreated infant usually causes death.

A high incidence of suspicion on the part of the obstetrician or paediatrician is required to make an early diagnosis of esophageal atresia. Any new born infant who has an excess of mucous in the mouth and naso-pharynx should be suspected of having esophageal obstruction. The diagnosis can be established or eliminated easily and quickly by attempting to pass a French number eight or ten urethral rubber catheter down the esophagus into the stomach. If the catheter meets with an obstruction and cannot be passed into the stomach, then the diagnosis of esophageal atresia has been made. Further collaborative diagnostic evidence can be obtained by means of roentgenography. Under the fluoroscope one or two cc's of iodized oil (Lipiodal) can be introduced down the esophageal catheter, and the end of the blind upper esophageal pouch can be clearly visualized. It is important to view this pouch from its lateral aspect as well as anteriorly, so that any fistula extending forward into the trachea can be seen. X-ray films of the abdomen show whether or not gas is present in the stomach and intestines, thereby giving information regarding the lower esophageal segment. In a great majority

Figure 1



Types of esophageal atresia and tracheo-esophageal fistula:

1. Esophageal atresia. There is no esophageal communication with the trachea. The lower esophageal segment is commonly very short.
2. Esophageal atresia with the upper pouch communicating with the trachea.
3. Esophageal atresia with distal tracheo-esophageal fistula. Over 90% of cases are of this type.
4. Esophageal atresia with both segments communicating with the trachea.
5. Isolated tracheo-esophageal fistula without esophageal atresia.

*From the Surgical Service of the Winnipeg Children's Hospital, and the Surgical Department of the University of Manitoba.

of patients there is a fistulous connection from the trachea to the lower esophageal segment which allows air to pass into the stomach and intestines. Barium mixture should never be used to visualize the upper esophageal pouch, because, if it should flow over into the lungs, it will produce a severe and sometimes fatal pulmonary reaction. Even when iodized oil is used, it should be introduced under fluoroscopic control to prevent the introduction of an excess.

Treatment

Prior to the year 1937, all infants born with this malformation died despite numerous and varied surgical efforts at repair. In that year, Leven² in St. Paul, and Ladd³ in Boston, independently devised a successful method of surgical treatment. By staged procedures, they ligated the tracheo-esophageal fistula, marsupialized the upper esophageal pouch at the base of the neck, and performed a gastrostomy. By means of skin lined tubes they then constructed an antethoracic esophagus to connect the marsupialized upper pouch to the gastrostomy below. In 1941 Haight⁴ performed the first successful esophageal reconstruction within the mediastinum, and this method of repair has subsequently proved to be the best means of surgical treatment.

Preoperative Care

Once the diagnosis has been established, the upper blind ending esophageal pouch should be kept empty by continual or frequent intermittent suction to the esophageal catheter. The baby's head should be elevated approximately thirty degrees to minimize reflux of gastric contents up the distal esophageal segment, through the fistula and into the trachea. Penicillin and streptomycin in appropriate dosage are administered intra-muscularly to prevent or to treat existing pulmonary infection. The infant should then be transferred to a centre where surgical repair can be carried out.

Upon arrival at the Children's Surgical Centre, the infant should be placed in an incubator and oxygen should be administered. The catheter suction to the upper esophageal pouch is continued, as is also the elevation of the baby's head. A sample of blood is obtained from the baby for grouping and matching, so that blood for transfusion will be available during the operative procedure. In addition, the child should be given subcutaneous vitamin K to counteract any possible hypoprothrombinemia of the new born. Antibiotic therapy is continued. After these precautionary measures have been instituted, there is no need to rush surgery. In fact, it is usually advantageous to allow the child to rest for twelve to twenty-four hours so that he may completely recover from the effects of his trip from the maternity hospital. This interval can be utilized to better

the baby's condition and also to determine whether or not other congenital anomalies are present. Surgery is planned when the surgical team is fresh, and when the procedure can be performed under ideal and unhurried conditions. Since newborn infants require very little fluid for the maintenance of their normal hydration, and since a slightly dehydrated infant withstands thoracic surgery much better than an over-hydrated edematous baby, preoperative parenteral fluid need be given only to the infant with severe dehydration.

Surgical Technique

Intratracheal oxygen-ether anaesthesia is usually employed. A cut-down is performed on a medial ankle vein and a small polyethylene cannula is introduced into the vein for the administration of blood during the operative procedure. The child is then positioned on the operating table with the right chest upper-most and the chest is opened through the fourth rib interspace. If the exposure obtained is inadequate, it may be increased by dividing the fourth and fifth ribs posteriorly. The lung is retracted anteriorly and then the parietal pleura overlying the region of the esophagus is opened. The azygos vein is divided between ligatures and the distal esophageal segment is identified. The dissection is carried upwards so that the fistulous connection into the trachea can be seen. The fistula is divided and the tracheal opening is closed. The dissection is then directed to the upper esophageal pouch. If both esophageal segments are thoroughly freed from adjacent tissues, it is usually possible to approximate the esophageal ends without tension. A primary esophageal anastomosis in two layers using interrupted sutures of 5-0 black silk may then be satisfactorily performed. A small rubber catheter connected to underwater drainage is inserted into the right chest cavity through a small stab wound below the main incision. The chest wound is closed in layers.

Because it is risky to have the infant swallow fluids immediately after his esophageal repair, and because an indwelling catheter passed through the esophageal anastomosis may interfere with healing, if the infant's condition permits, a feeding gastrostomy is usually performed at the conclusion of the thoracotomy. The baby is turned on his back and a short left rectus muscle-splitting incision is made in the upper abdomen. The stomach is identified and delivered out through the wound. Two concentric purse string sutures of 4-0 silk are inserted in the stomach wall. In the centre of these, the stomach is opened, and a French number 14 mushroom catheter is introduced. The purse string sutures are drawn tight as in a Stamm gastrostomy, and the abdominal wound is closed in layers about the gastrostomy tube. This second procedure requires

only ten to fifteen minutes to perform, does not appear to add to the operative mortality, and greatly facilitates the care of the infant during the postoperative period.

In some instances the esophageal segments are so short that it is impossible to bring the two ends together for anastomosis. This is particularly apt to be the situation when there is an esophageal atresia alone without associated tracheo-esophageal fistula. (Type 1). In these circumstances, it is necessary to extend the dissection down through the esophageal hiatus of the diaphragm, and to bring the stomach up into the right chest so that adequate length for the esophageal anastomosis can be obtained. With the stomach in the chest, a gastrostomy cannot be performed. In this instance, it is best to leave a polyethylene tube through the anastomosis for the postoperative feeding of the child.

Postoperative Care

After the operation, the baby is replaced in the incubator and oxygen administration is continued. Antibiotic therapy is maintained for seven or eight days. Blood, plasma, and fluids can be administered cautiously through the intravenous cannula as required. Twenty-four hours after surgery, feedings, first of sugar water in small amounts, can be given through the gastrostomy tube. If these are well tolerated, feedings of milk formula can be commenced. If all goes well, the chest catheter can be removed on about the seventh to tenth day after the danger of esophageal breakdown has passed. Cautious feeding by mouth can then be instituted. If the feedings are taken well, the gastrostomy tube can be removed and the abdominal wound will heal spontaneously within the space of a few days. If for any reason the surgeon feels that the development of a postoperative esophageal stricture is likely, the gastrostomy tube, even though not used, can be allowed to remain in place as a safety feeding device for several months.

If the diagnosis of esophageal atresia and tracheo-esophageal fistula is established early in life, prior to the development of severe pneumonic changes, surgery can be carried out to a successful outcome in approximately 85% of cases.

Case Reports

Case Number 1.

Baby boy, G.L., was born on December 29th, 1953, at Grace Hospital in Winnipeg. At birth he appeared normal in all respects and weighed six pounds one ounce. Shortly after birth, however, the nurses in the maternity nursery noted that the child had an accumulation of mucous in the back of his mouth which required frequent aspiration. A trial feeding of dextrose and water was given to the child, but the child coughed and spluttered after taking only a few swallows and vomited up the feeding. The attending obstetrician, Dr. R.

G. Greer, asked Dr. George H. Shapera to see the child in consultation. An attempt was made to pass a catheter down into the baby's stomach and this catheter met with an obstruction high in the esophagus. The diagnosis of esophageal atresia and tracheo-esophageal fistula was established by x-ray studies. The child was transferred to the Winnipeg Children's Hospital on January 1st, 1954, and his operation was carried out on the following morning. At operation, the tracheo-esophageal fistula was divided and the tracheal opening closed. The upper esophageal segment was short and there was a gap between the two esophageal ends of three centimeters. After freeing up both esophageal segments, it was possible to approximate the two ends, although not without some tension. An esophageal anastomosis was carried out in two layers. This anastomosis was difficult to do and was narrower than the ideal. After the thoracotomy wound had been closed, a feeding gastrostomy was performed. The postoperative condition of the patient was satisfactory.

Postoperatively the child was fed through his gastrostomy until the twelfth postoperative day, when he began to take feedings by mouth. These were taken satisfactorily and the child began to gain weight. He was discharged from hospital on January 27th, 1954.

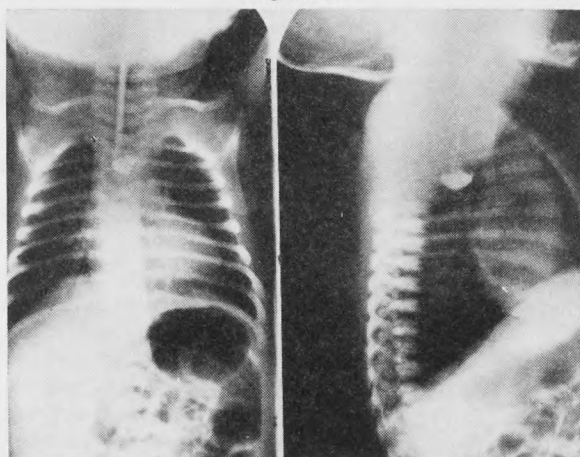
Shortly after going home, however, the child developed diarrhoea and had difficulty in taking his feedings by mouth. Accordingly, the child was readmitted to hospital on January 30th, 1954. A postoperative esophageal stricture was suspected and was demonstrated by x-ray. On February 1st, without anaesthesia, the child was esophagoscoped and the esophageal stricture was dilated with filiform dilators up to a French 18. Following this dilatation, the child took feedings by mouth without difficulty and was discharged from hospital on February 15th. At home the child again did well for a while, but was readmitted to hospital on February 26th with a recurrence of his esophageal stricture. On the following day his esophagus was again dilated, this time up to a French 20. The child still had his gastrostomy tube in place, so that during these episodes of difficulty in swallowing his hydration and nutrition could be maintained by gastrostomy feedings. It is likely that this child will require further dilatations approximately every four to six weeks for about nine months. Previous experience with other infants having this complication, leads one to believe that with growth of the infant, and repeated dilatation, his esophageal stricture will become minimal so that the child will be able to swallow eventually, without any difficulty whatsoever.

Case Number 2.

Baby girl, K.T., was delivered by Dr. Cherry Bleeks at the Winnipeg General Hospital early

in the morning of February 3rd, 1954. The birth weight was six pounds, six ounces. Shortly after birth it was noted that the child had an accumulation of mucous in the back of the throat which required frequent suctioning. Despite these measures, the child suffered several episodes of cyanosis and choking. The nurse on duty in the maternity hospital nursery became alarmed about the condition of the infant and asked the paediatrician, Dr. Sam Boyd, to see the child first thing in the morning. An attempt was made to pass a catheter down the esophagus and it met with an obstruction. A diagnosis of esophageal atresia was therefore made and the child was transferred to the Children's Hospital. X-ray studies confirmed the diagnosis of esophageal atresia with tracheo-esophageal fistula. (Fig. 2).

Figure 2



Roentgenologic findings in case 2. A catheter has been introduced through the nose into the blind upper esophageal segment. Lipiodol outlines the lowermost point of the pouch. Gas in the stomach and intestines indicates that there is a tracheal fistula to the distal esophagus.

On February 4th the child was operated upon. The fistula was divided and closed. A very satisfactory primary esophageal anastomosis was performed without difficulty. A feeding gastrostomy was done at the conclusion of the thoracotomy. Postoperatively this little baby girl did extremely well, at first receiving feedings by gastrostomy but by the 8th postoperative day, she was taking feedings by mouth. The child was discharged from hospital on February 18th and has since been doing well at home. It is unlikely that this child will develop an esophageal stricture and so it is planned to remove the gastrostomy tube early in March of 1954.

Summary

Esophageal atresia with tracheo-esophageal fistula constitutes one of the surgical emergencies in the new born period. The nature of the condition, the signs and symptoms, the diagnosis, and the surgical treatment of infants born with this abnormality have been briefly reviewed in this

paper. Case reports of two infants successfully undergoing surgery for esophageal atresia with tracheo-esophageal fistula are included. If the abnormality is recognized early in life, prior to the development of serious aspiration pneumonia, surgery can be carried out to a successful outcome in approximately 85% of cases.

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Penicillin Sensitivity With Electrocardiographic Changes

Leslie J. Cera, M.D., M.Sc.

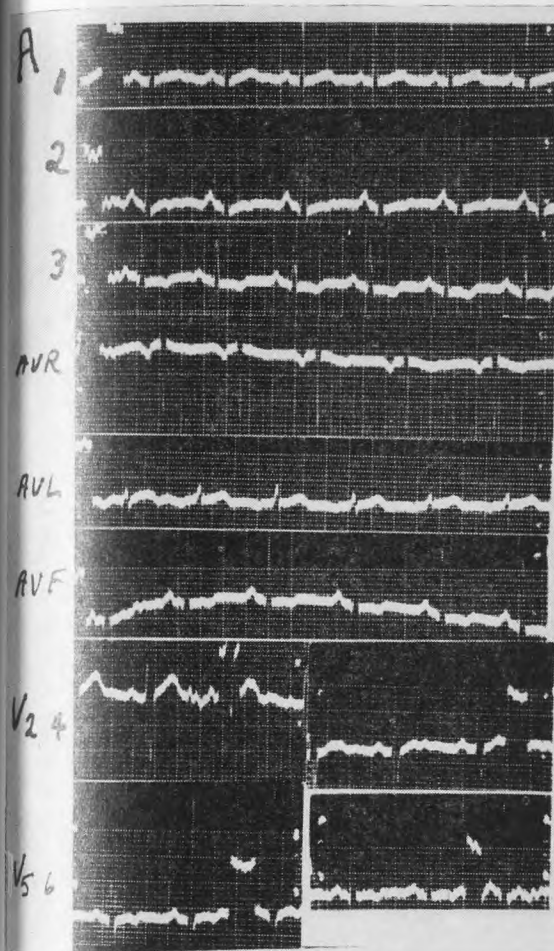
Department of Medicine, Deer Lodge Hospital,
Winnipeg, Man.

Serum-like reactions to Penicillin are not uncommon. However, it has not been generally appreciated that cardiac involvement may be an integral part of the allergic reaction. The following case is believed to be of some interest in that definite electrocardiographic changes were demonstrated and reversion of these changes was effected with Cortisone therapy.

Case Report

Mr. W. S., a 21-year-old male was admitted to Deer Lodge Hospital on August 17, 1952, complaining of painful joints, pruritis and skin eruption. He had been quite well until August 1, 1952, at which time he had developed an infected wisdom tooth for which he was given three injections of Penicillin on successive days. The Penicillin menstruum could not be determined. On August 11, the soles of his feet became hot and itchy and were covered with wheals. On August 12 he noted difficulty in walking because of painful feet. His left hand was said to be swollen and painful and both knees hot and swollen. There was anorexia. There was a tendency for the pain to wander from joint to joint. Pyribenzamine was begun in dosage of 300 mgm. per day but was abandoned after three days as ineffectual. August 14, 1952, a widespread skin eruption developed. On August 17, physical examination revealed a well developed and nourished, restless young man in moderate distress from pruritis. Temperature was 101°; pulse 120; Respiration 20 and B.P. 120/80. There were multiple small non-tender glands palpable in the posterior triangles of the neck. The eyelids were swollen. There were urticarial wheals on the scalp, trunk and limbs. There was a grade 2 apical systolic murmur but examination was not otherwise remarkable.

Specific gravity of the urine varied between 1010 and 1024 and one specimen taken the day of admission showed 0.16% albumen. W.R. was negative. A blood count revealed a hemoglobin of



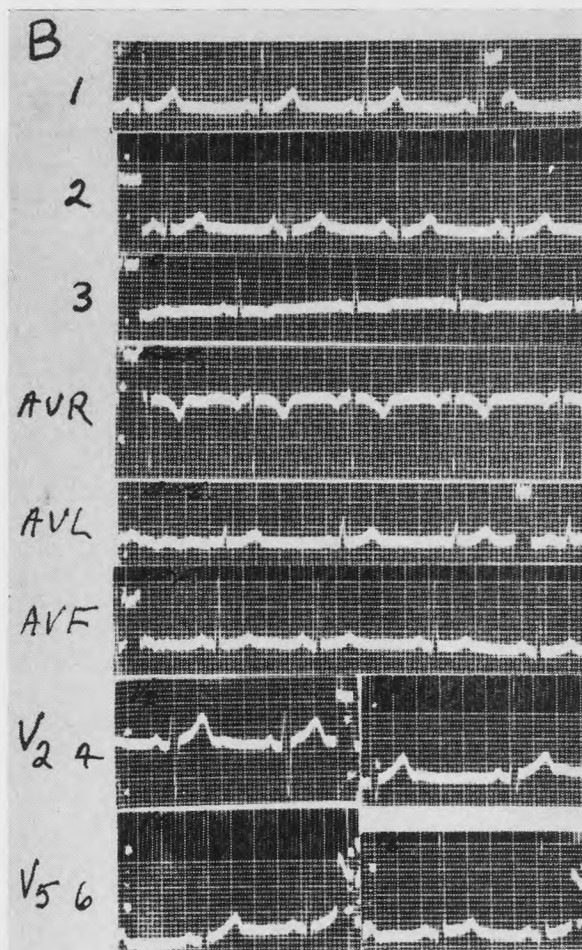
85%; R.B.C. of 4.9 million; W.B.C. of 7,000 with 68% Neutrophils, 29% Lymphocytes, 2% Monocytes and 1% Eosinophils. Sedimentation Rate was 98 mm. (Westergren). Chest X-ray was negative. An Electrocardiogram revealed low amplitude of T_1 inverted T_{aVF} and inverted T_{V4} , T_{V5} and T_{V6} (A).

Since Pyribenzamine had been without effect, it was decided to try Cortisone which was subsequently given in total dosage of 975 mgms. in 3 days. Within 24 hours of institution of therapy there was marked subjective and objective improvement with disappearance of pruritis, joint pain and urticaria. The temperature and pulse became normal and irritability, restlessness and anorexia were replaced by a sense of well-being and healthy appetite. The cervical adenopathy remained. No murmur was audible.

On August 21, a repeat E.K.G. was normal. (B). Sedimentation Rate had fallen to 42 mm. and by August 27, Sedimentation Rate was 13 mm.

Discussion

Although there have been many reports of Penicillin sensitivity reactions, there have been few of electrocardiographic changes in these re-



actions. This may be partly attributed to infrequent cardiographic investigation of such cases and partly to the apparent occurrence of such changes only in severe reactions¹.

Changes demonstrated have been variously ascribed to lesions in the myocardium, pericardium and coronary vessels.

It would appear reasonable to suggest that, where possible, electrocardiographic investigation be undertaken in cases of serum and Penicillin sensitivity since there may be a paucity or absence of clinical manifestations of cardiac involvement in the presence of electrical changes. Moreover it seems possible that early involvement may pre-empt severe cardiac insult including myocardial infarction².

Summary

1. A case, manifesting penicillin sensitivity, has been presented.
2. E.K.G. changes which reverted with Cortisone therapy were noted.

3. It is suggested that electrocardiographic investigation be undertaken where possible, in all such cases, even in the absence of clinical cardiac involvement.

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Bilateral Hydronephrosis*

Case Report

J. Reid Taylor, M.D.**

P. W., a farmer, 27 years old, was first seen on December 11th, 1951. He gave a two-year history of periodic left loin and left upper quadrant pain with fever and hematuria. In 1949 he was admitted to his local hospital and improved rapidly with medical care.

He was well until late November, 1951, when he developed the same pain with fever and hematuria. He was again admitted to hospital and placed on medical treatment. The symptoms cleared within three days and shortly thereafter he came to the city "for a check-up."

The patient's complaints were those mentioned above plus some detectable fullness in the left flank as compared to the right. There was neither frequency nor dysuria.

He was a muscular man of average weight. His personal and family did not contribute anything significant. His blood pressure was 150/80, and the physical examination was negative except for a tender, mobile, easily palpable mass, the size of a grapefruit, in his left upper quadrant.

He was admitted to hospital the same day with a diagnosis of left hydronephrosis, probably congenital in origin.

Hospital investigation revealed a blood urea of 27 mg.% and a hemoglobin of 96%. Urinalysis showed 4-6 WBC, 3-5 RBC, and specific gravity 1.020.

Intravenous pyelography (Fig. 1), demonstrated good early function of the right kidney with marked hydronephrosis. In the 90-minute film the pelvis had not emptied. No dye appeared on the left side and a large soft tissue mass was apparent in the left upper quadrant.

At cystoscopy, a catheter was easily passed to the left kidney. 120 cc. of cloudy urine was withdrawn. After injecting dye and making films (Fig. 2), the left kidney was reported as resembling "a large sac."

The diagnosis was altered to bilateral hydronephrosis, most likely due to aberrant vessels crossing the uretero-pelvic junction. It was decided that the best course lay in immediately eliminating the cause of the hydronephrosis in the right kidney with the hope that some restoration of function would occur later. Left nephrectomy was considered to be necessary, but not at that time imperative.

Accordingly, on December 19, the right kidney was exposed through a lumbar incision. The renal parenchyma appeared healthy and of normal thickness. There was a large, tense, extra-renal pelvis. An aberrant vessel was seen to cross and obviously obstruct the uretero-pelvic junction. On dividing the vessel, the pelvis emptied rapidly.

Although the uretero-pelvic junction appeared to be of adequate size, good drainage was considered so imperative that a T tube was inserted about 1½ inches below the junction.

Convalescence was uneventful and on the 12th post-operative day, Diodrast injected through the T tube passed readily in both directions. Films were made (Fig. 3), and the radiologist reported that "the hydronephrosis has very much improved."

At this time it was noted that the left upper quadrant mass had disappeared. This was considered due to the improved drainage incidental to the recumbent position.

It was planned to leave the tube in situ for one month. Shortly before the month was up, a recheck intravenous pyelogram (Fig. 4), with the tube clamped, showed some increase in the dilatation of the pelvis and calyces. The T tube was removed and found to be the site of obstructing phosphatic encrustations. Following this, the wound closed at once with no urinary fistula.

On the 23rd of January, 1952, a right retrograde pyelogram (Fig. 5), showed a slight further decrease in the hydronephrosis.

The patient was discharged three days later with instructions to return in one month for a left nephrectomy. However, he returned in six days because of the fear of a mishap at home. His condition was judged to be good and he underwent a left nephrectomy on the 7th of February, 1952.

At operation a large pyonephrosis was exposed through a lumbar incision. Aberrant vessels were seen to cross the uretero-pelvic junction. These were divided and ligated, as was the ureter. During delivery, the kidney was ruptured with release of a large amount of odorless pus. Nephrectomy was difficult due to rather extensive peritoneal and diaphragmatic adhesions.

Recovery was, again, uneventful. The patient gained ten pounds and was discharged one month after operation in an excellent frame of mind.

On the 28th of March he arrived at my home late at night, very disturbed, and clutching two

*This case was treated by the author while he was on the staff of the Regina General Hospital.

**Department of Urology, Winnipeg Clinic, Winnipeg, Manitoba.

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Figure 1

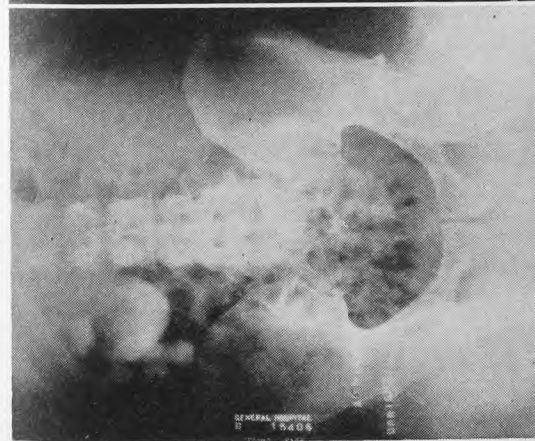


Figure 2

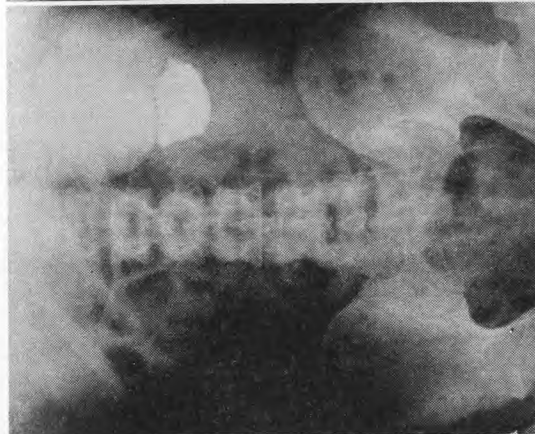


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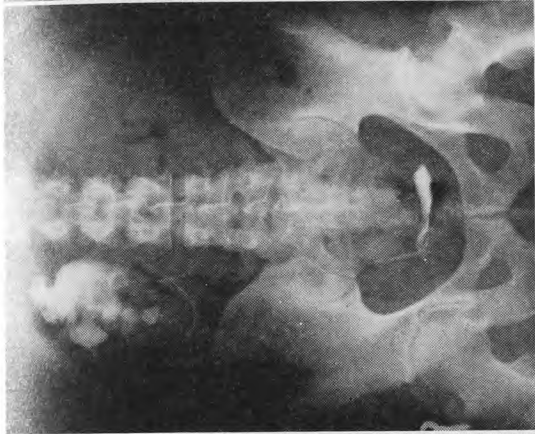


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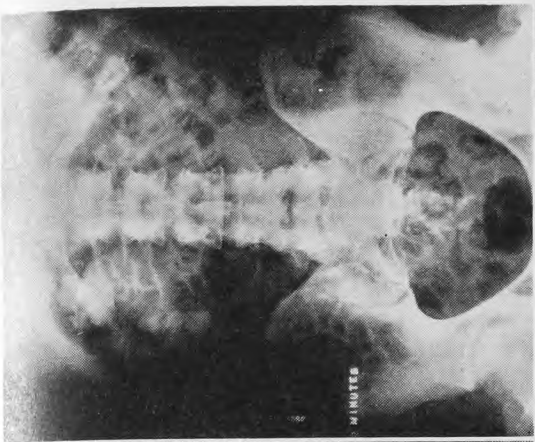


Figure 5

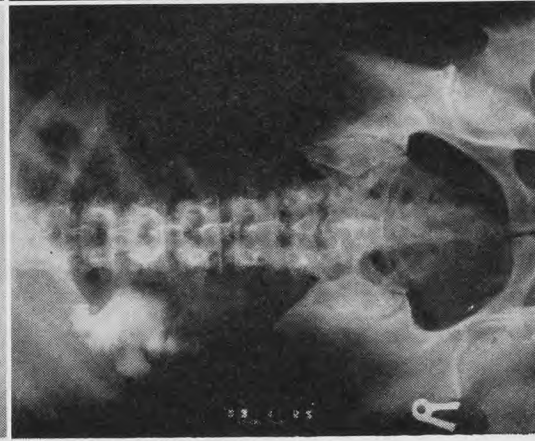


Figure 6

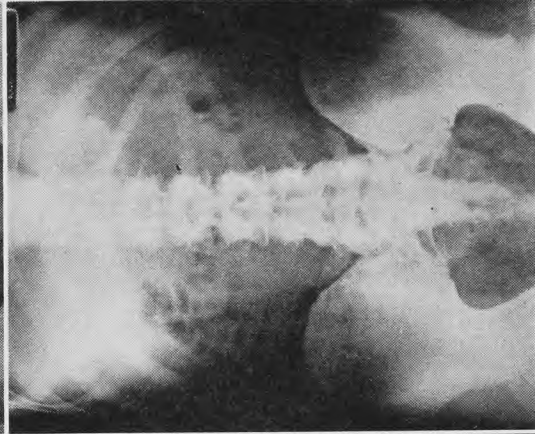
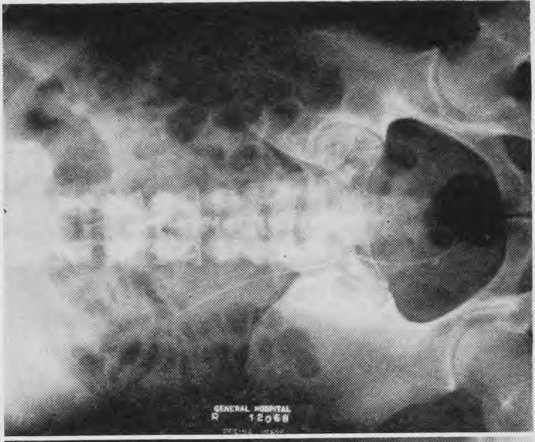


Figure 7



Figure 8



small phosphatic fragments which he said he had passed urethrally. Next day, at the office, a plain film (Fig. 6), revealed a nest of tiny calcified flecks lying in the lower pole of the right kidney. There were 15-20 pus cells in the urine and the specific gravity was 1.025. The calculi were considered to be due to the phosphatic deposits left when the T tube was removed. He was sent home on a sulfonamide with a return appointment for one month.

The patient returned on May 1st. At this time the urinalysis was normal and the hemoglobin 93%. An intravenous pyelogram demonstrated no further regression in the hydronephrosis. The nest of calculi was unchanged.

He was seen again on the 28th of June, having passed two small calculi since his last visit. Intravenous pyelography (Fig. 7), demonstrated good function with almost complete emptying in 45 minutes (as compared to no drainage in 90 minutes in the preoperative films of December). The calculi appeared smaller.

On October 3rd the patient was admitted to hospital by ambulance. He was quite ill, with fever and a blood urea of 110 mgms.%. Forty-eight hours previously he had developed acute lower quadrant pain with anuria. Investigation (Fig. 8), showed the nest of stones to have coalesced and come down the ureter, blocking the uretero-vesical juncture. Emergency catheterization of the ureter resulted in a good flow of urine. The catheter was strapped in place and left to drain the kidney.

Three days later, the catheter became plugged. It was not possible to pass another due to edema of the ureteral orifice. The intra-mural ureter was unroofed with a resectoscope. Following this, it was again impossible to pass a catheter.

An immediate extraperitoneal ureterostomy was done through the right lower quadrant. A T tube was placed in the ureter just below the pelvic brim.

At this point the blood urea was 166 mgms.% decreasing to 44 mgms.% over the next 10 days. Progress was satisfactory; however, the stone remained trapped in the dilated ureter, between the bladder and the lower limb of the T tube.

On November 3rd, the fourth attempt at cystoscopic removal was successful. The stone was rather easily snared and withdrawn. At this time the blood urea was 29 mgms.% but the kidney could concentrate to a specific gravity of only 1.016. Several days later the T tube was clamped. The patient voided well and the tube was removed 48 hours later. There was a rapid closure of the wound with no fistula.

The patient was discharged on Remembrance Day, 1952. He had decided to move to Regina in order to be close to assistance. However, things went well and he came in from the farm in December for an office visit. He had put on weight and looked and felt well.

In January, 1953, the specific gravity of the urine was up to 1.020. There were only 6-8 pus cells per high power field. The hemoglobin was 94%. Intravenous pyelography revealed good function and satisfactory emptying. There was no further decrease in the hydronephrosis.

I last saw him in June, 1953. The pyelograms were unchanged. He had been leading a normal life as a farmer and father.

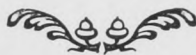
His latest recheck was in November, 1953, and I was told his condition was excellent at that time.

Summary

Patients with recurrent urological symptoms or with unexplained abdominal pains must have a complete urological investigation.

There is a marked tendency for congenital uretero-pelvic obstruction to the bilateral. The symptomatically silent nature of such lesions explains the fact that these patients do not usually seek aid until the third decade.

This case illustrates the extraordinary recuperative powers of the kidney. The urinary tract on the right, particularly the ureter, was subject to repeated investigation and operative trauma. Yet, due to adequate drainage, recovery was prompt. The original objectives were to arrest the disabling process and effect some improvement in renal function. These objectives were attained. The prognosis is good.



Clinico-Pathological Conference

Deer Lodge Hospital

November 17, 1953

Autopsy Findings—A1309

The body is that of an 80-year-old white male, measuring 5 feet 7 inches in length and weighing 95 pounds. The conjunctiva are icteric. There are two healed abdominal scars from previous surgery. There are multiple cherry red naevi scattered over the abdomen, thorax and upper extremities. There is pitting edema of the right leg below the knee.

Cranial Cavity

No significant pathology.

Thoracic Cavity

Both lungs exhibit congestion, edema and bronchopneumonia.

Abdominal Cavity

The liver is small and cirrhotic and weighs 950 gms. Its external surface shows beginning hob nail appearance and is pale in color. The gall bladder is greatly distended with dark green bile. On section the liver is found to be very tough and fibrous and gives the appearance of hob nail liver.

The splenic capsule is thickened indicating an old perisplenitis. Cut sections exhibit a mottled appearance and it is tougher than normal on sectioning.

Left kidney on removal opens up a pus pocket. The capsule of the kidney is greatly thickened and is difficult to strip. There is a small cyst in the cortex measuring 1 cm. in diameter. The cortex and medulla are not well differentiated. The cortex measures up to .5 cms. in thickness, the pelvis is greatly enlarged, is thickened and firm, and appears to be involved in an inflammatory process.

The right kidney weighs 160 gms. There is a large cyst containing clear straw colored fluid located on the lateral aspect of the right kidney, and communicating with the kidney by a small opening in the cortex measuring .5 cm. in diameter. The capsule of the kidney strips with some difficulty. The cortex and medulla of this kidney are not well differentiated, as on the opposite side. The cortex varies in thickness from 2-5 mm., it is everywhere attenuated. There is a small cyst present in the upper pole measuring 1.5 cms. in diameter. The blood vessels in the medulla are thickened and gaping. The pelvis is abnormally large in size but there is only an average amount of pelvic fat.

The oesophagus is opened and what appear to be oesophageal varices are noted in the lower 2.5 cms. of the oesophagus.

Microscopic Findings

Heart—Myocardium appears to be atrophic.

Lung—Left: Section shows bronchopneumonic polymorph infiltration and surrounding oedema in the lower lobe. Some of the bronchioles contain pus.

Right: Section shows an extensive and severe infiltration with oedema in both upper and lower lobes more marked in the lower.

Liver—Section shows a well marked portal cirrhosis with the parenchyma divided by fibrosed bands into larger and smaller irregular rounded lobules. There is marked increase of fibrous stroma with bile duct budding. There is also a fairly well marked fatty degeneration.

Kidney—Right: Section shows a fairly large cyst with remnants of pink staining contents.

Left Kidney — Section shows small cysts bordered by areas of fibrosis. Some of the distal tubules contain pink-colloid-like material and their glomeruli are fibrosed resembling moderate nephroclerosis or healed pyelonephritis.

Prostate — Section shows areas of nodular hyperplasia.

Oesophagus — The mucosa is irregular and eroded. There are many dilated blood containing vessels of venous type in the submucosa (oesophageal varices).

Autopsy Diagnosis

1. Bilateral severe bronchopneumonia.
2. Inanition due to repeated hematemesis.
3. Portal cirrhosis.
4. Oesophageal varices.
5. Left pyonephrosis—*Strep. fecalis*, *B. coli*.

Cirrhosis of the Liver

Portal cirrhosis is in essence a destruction of the hepatic cells and their replacement by fibrous tissue. It is thought that the fibrous tissue is stimulated to proliferate by the injurious agent. Any agent which tends to diffuse necrosis of hepatic cells can give rise to cirrhosis. Some of the more common liver poisons are cinchophen, arsphenamine, trinitrotoluene, alcohol. In the great majority of cases of cirrhosis no cause can be demonstrated.

There are two main groups of human portal cirrhosis: (1) A common primary or idiopathic type due to a variety of slow acting agents; this is the form described by Laennec. (2) A more unusual type secondary to one or more attacks of acute or subacute hepatic necrosis. This may, therefore, be called post-necrotic cirrhosis; it is the multiple nodular hyperplasia of Marchand. The former type is more common in men, the latter in women.

1. In the great majority of cases cirrhosis is the result of a slow, long continued necrosis, a nibbling away of hepatic cells and their replacement by fibrous tissue. The cause of the gradual destruction is uncertain. There is no history of attacks; anything that interferes with respiration of the hepatic cells will give rise to necrosis and finally cirrhosis. Anoxia of the hepatic cells interferes with carbohydrate metabolism and the cells become infiltrated with fat which replaces the normal glycogen. Marked fatty infiltration appears to be an antecedent of cirrhosis in many cases, especially when alcohol is a factor. Many of the hepatic poisons, such as chloroform, ether, carbon tetrachloride, and alcohol interfere with cell respiration in the liver, and this is followed by glycogen depletion, accumulation of fat, and eventual disintegration of the liver cells. The action of these and other agents is intensified by infection, pregnancy and dietary deficiencies. In chronic alcoholism there is a low intake of protein, carbohydrate and vitamins, diminished storage of glycogen, and fatty replacement of the liver cells. These conditions render the liver more vulnerable with consequent necrosis and cirrhosis.

2. The post necrotic type may be due to agents known to cause diffuse necrosis (cinchophen, arsphenamine, trinitrotoluene) or may be the sequel to viral hepatitis. This is the "Toxic cirrhosis" of Mallory. There may be repeated attacks of jaundice with epigastric pain, vomiting and fever, attacks which are designated by the clinician as hepatitis. At each attack large groups of liver cells are destroyed. If the patient survives, these areas are replaced by fibrous tissue, whilst the remaining cells undergo compensatory nodular hyperplasia. As the result of the hyperplasia quite large nodules of new liver tissue may be formed.

Hepatic cirrhosis is merely the end stage of hepatitis, its character depending on the type of injurious agent, its dose, and the time during which it operates.

Experimentally hepatic injury has been produced in a number of ways: (1) By allowing the abnormal accumulation of liver fat when a diet deficient in lipotropic factors such as choline, betaine and methionine is given. (2) A relative deficiency of lipotropic factors may be induced by giving a high fat, high carbohydrate diet at the expense of lipotropic containing protein fraction. Excessive consumption of alcohol may induce a relative lipotropic deficiency giving alcoholic cirrhosis.

A variety of toxic agents such as butter yellow, chloroform, carbon tetrachloride, phosphorous, selenium are causative agents.

Diets deficient in the sulphur-containing amino acids, methionine and cystine and vitamin E pro-

vided they contain at least a small amount of fat, can produce an hepatic necrosis. Many American yeasts contain a protective factor (Schwartz's Factor 3) which will prevent this from occurring.

Symptoms and Signs

As 80% of the liver substance must be destroyed before decompensation and symptoms occur, the onset of liver failure is often insidious. Lassitude, abdominal distension and gaseous eructations are common early symptoms. Yellow conjunctiva and jaundice are present when the cirrhosis is advanced. A foul fatty diarrhoea may ensue. Bleeding phenomena occur such as epistaxis, bleeding oesophageal varices and hemorrhoids.

Weight loss is common, as is diffuse abdominal pain. They may have pain in the right hypochondrium and a heavy dragging sensation. This pain may also be felt in the back. Splotchy brown pigmentation may be seen and spider angiomas are characteristic of liver failure. Red palms, chiefly over the thenar and hypothenar eminences are frequently found. Fever up to 101° and occasionally up to 103° is also found. The breath of these people has a peculiar odor to it. In females oligomenorrhoea and amenorrhoea may occur. In males, loss of libido and impotence is found. On x-ray examination osteoporosis and osteomalacia may be observed.

A peripheral neuritis may be an accompanying feature, its cause probably being the same as that of the cirrhosis. Psychosis, delirium, mania, coma are terminal events.

Signs of Portal Obstruction

- (a) Hemorrhoids
- (b) Oesophageal varices + hematemesis
- (c) Dilated abdominal veins
- (d) Ascites
- (e) Enlarged spleen

Other Important Causes of Hematemesis

- 1. Peptic ulcer
- 2. Ca. of stomach
- 3. Portal hypertension
- 4. Miscellaneous:
 - (a) Other tumors of stomach and duodenum
 - (b) Pathology of the smaller intestine
 - (c) Hiatus hernia
 - (d) Blood dyscrasias
 - (e) Gastritis

Pathological Lesions

The liver is atrophic in the later stages, but in the earlier stages it may be larger than normal. This is especially the case when the fatty changes due to chronic alcoholism are marked. In extreme cases it is only one-half the normal weight. The consistency is very firm owing to the large amount of fibrous tissue and it is usually difficult to cut. The surface of the liver has a characteristic nodular appearance (hob-nailed liver), and the cut surface is correspondingly nodular. The nodules vary

much in size. Large nodules over 2 cm. in diameter suggest the post necrotic type cirrhosis, and these may be so large as to produce distortion of the liver. In ordinary cirrhosis the nodules are small (hob-nail liver) and the surface may be merely granular. The color varies. The islands of liver tissue may show no change from the normal; they may be yellow from fatty changes, or green due to staining with bile. There is often a general brownish or tawny coloration (to which the name of cirrhosis was originally due) caused by the deposition of iron pigment.

Micro

The earliest change is a proliferation of the connective tissue in the portal space. Normally there is a sharp delineation of this space, but in cirrhosis the boundary is broken by proliferation of the fibroblasts between the degenerated peripheral cells. As the disease advances groups of liver cells of very varying size are separated by broad strands of fibrous tissue. The islands of liver cells may resemble lobules, but this appearance is fictitious; there is no true lobular arrangement, for there is no central vein in the centre of the islands, which for the most part represent new formations due to regenerative hyperplasia. The portal vein does not drain into the new nodules, which get their blood supply from the hepatic artery. The salient feature is thus loss of hepatic architecture. The nodules are composed largely of new cells which show irregularity of size and arrangement. Between the nodules the liver cells have disappeared. Occasionally some of the degenerating cells contain a peculiar hyaline material staining deeply with eosin; this appearance used to be considered as characteristic of alcoholic cirrhosis (Mallory), but this view has had to be abandoned. The connective tissue forms broad bands between the islands of liver cells, and may be young and cellular or old and fibrous. Chronic inflammatory cells are present, sometimes in large numbers but the chief feature is the greatly increased number of bile ducts. Cords of young liver cells may simulate new bile ducts. There is evidently a proliferation of biliary epithelium which establishes connection with the new groups of liver cells. Jaundice only appears late in the disease; even then it is seldom marked.

Testicular atrophy is a common finding in hepatic cirrhosis. It is much more frequent in those below the age of fifty years than in those above that age. It has been suggested from experimental evidence that there is failure of normal inactivation of estrogen by the liver, and that this results in atrophy of the testes. The urine from patients with cirrhosis of the liver contains increased amounts of free oestrogens, and it is well known that administration of the estrogens leads to testicular atrophy. Hyperplasia of the breasts

(gynecomastia) in the male and metaplasia of the epithelium of the glands and ducts of the prostate also occurs; though less frequently.

References

Boyd: Pathology, 6th ed.
Harrison: Principles of Medicine.

* * *

December 1, 1953

Mr. T. H. D.

Pensionable Disability: Myalgia.

1931—History of perforated ulcer. Repaired at W.G.H. Ulcer history dating to 1916.

1936—Bladder calculi removed at St. Boniface Hospital.

October 15, 1946—Admitted c/o pains in abdomen and vomiting for past 2 weeks. Pain is epigastric, "gripping," spreads up chest to throat and is steady for 2-3 hours and relieved by vomiting. No melena or hematemesis. Px: negative excepting mod. prostatic enlargement. Has lost 15 pounds in 6 weeks. Heartburn 15-20 min. p.c. relieved by powder.

I.V.P. indistinct visualization of R. and L. kidney pelvis and ureters. Apparent large calculi in pelvis, possibly in bladder. Ba. Series: Ulcer on post. aspect of stomach close to pylorus. Duodenal cap deformed. No retention.

November 8—4 bladder stones crushed and removed—2 remain.

November 19, 1946—T.U.R. removing 35 gms. prostatic tissue which proved benign. Post-op. shock treated with I.V. ephedrine, blood and plasma. Post-op. vomiting relieved by Waggenstein for 2 days. Discharged improved on December 23, 1946.

April 22, 1947—Ba. Series: Stomach apparently normal, duodenal cap is deformed. No retention.

May 22, 1947—Laparotomy: No pathology of stomach or duodenum. Liver finely nodular. Few hard glands palpable in rectal mesentery. Satisfactory post-op. course. Discharged July 14.

On admission BP 124/80. Wt. 137 lbs., Ht. 5' 8". Urine: S.G. 1.012, Alb. 0.3%; WBC—occ'l. Gast. Analysis: 42-38-47 units free HCl. Blood: Hgb. 100%; RBC 5.5; WBC 14,000; E.S.R. 18 mm, May 27, to 50 mm June 15. B.U.N. 44 mg%.

June 10, 1953—Hospitalized 3 days for acute diarrhoea. After examination believed to be induced by overdose of laxative. Ba. enema: A number of diverticula present.

June 18, 1953—Admitted with incontinence of 3 days standing, melena x3, in past week and constipation for past year. Ba. series: duodenal cap deformity. Ba. enema—neg. Sigmoidoscopy: 3 external haemorrhoids. Marked osteoarthritic changes noted in x-ray of spine.

July 13, 1953—Admitted c/o epigastric pain, nausea and occasional hematemesis. Unable to retain food or fluids. Has lost "a lot of weight."

Blood Hb 97%; WBC 7,000; E.S.R. 51 mm. Urine: S.G. 1.010, Alb. 0.03%; Sugar neg. Packed with pus.

July 18, 1953, 6.00 a.m.—Emesis 500cc dark blood, pulse weak.

6.20 a.m.—Emesis 600cc dark blood in presence of interne. BP 80/60. Much improved after 1000cc blood. Serum Na 131 mlqv/litre; K—2.8 mlqv. Cl 94 mlqv.

July 29, 1953—Emesis coffee ground material. Much relief from gastric suction.

July 30, 1953—Emesis 900cc dark brown material. C/o epigastric pain. Some relief from

suction. E.C.G.: ischemic changes probably due to Coronary disease. Serum Na. 133 mlqv; K. 6.4 mlqv. Cl 92 mlqv.

August 26, 1953—Emesis of small amount of coffee ground material at 1 p.m. and at h.s. Levine tube removed 60cc dark gastric content flecked with blood. Hgb 80%; Hematocrit 32%; B.U.N. 22 mg%.

September 25, 1953—Patient very weak, and abdomen distended. Suction started. Constipation relieved by saline enema.

October 5, 1953—Following gradual decline into coma over 2 days, patient expired at 3.45 p.m.

Book Review

Questions and Answers

Do you think you could recognize a symposium if you saw one? And what would you do with a mixoscope? When you are a mithridatist (as you are at times) are you aware of the fact? Under what circumstances do you find Tardieu's Ecchymoses? Did the same Ludwig give his name to the angle as gave his name to the angina? You can describe Wartenburg's Sign but what is Wartenburg's Symptom? Can you give a reason for the wide prevalence of trikaidekaphobia? What is peculiar about a "Morand's Foot?" What part of the body gets its name from a key, from a brooch, from a sword, from an iron hook, from a shield? Is misoneism responsible for misopedia? Or is pedophobia to blame?

It is just possible that you might find some of these questions a bit hard to answer but your curiosity would quickly be satisfied if you had a Stedman's Medical Dictionary by your hand.

However large your library may be, it is incomplete if it lacks a dictionary. And the smaller it is the greater is your need for a dictionary. The present (18th) edition of Stedman is extraordinarily comprehensive. There are 1,605 pages of very small print. The revision gives over 3,100 new definitions and over 2,000 expanded definitions in addition to thousands of others. There are also tables, notes on important historical characters, etc., etc.

Not only are the words defined but the origin of each is given so that one understands exactly what it means. The first forty or so pages are devoted to Medical Etymology and the first two paragraphs are as follows: "It would be difficult to over-estimate the advantages that accrue to the student of medicine who sets aside time to acquire a knowledge of Greek and Latin sufficient to help him to understand and remember the increasingly formidable vocabulary which he is called upon to know.

"The acquisition of this knowledge could be purely utilitarian in its aim, and should lighten, instead of increase, the burden his memory has to bear. If however, it should lead to a greater interest in the classics, a double purpose would be served."

There are thirty pages of Greek and Latin words from which medical terminology is derived. Their meanings are given much more fully than in the dictionary proper. The fundamental meaning is given first and its other meanings in their chronological order of development. Where practical the words from the same root are grouped under a heading which is printed in block letters.

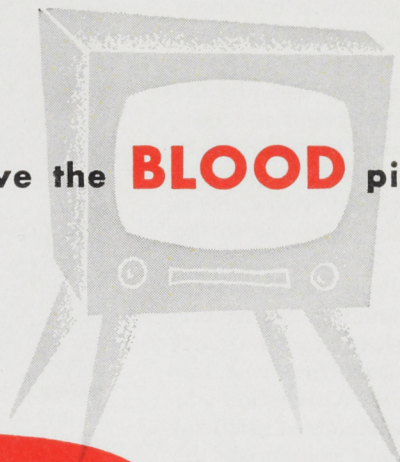
This section gives a little, practical, course in Medical Greek and Latin—a very necessary study now that no knowledge of either language is demanded of entrants to medical colleges. The careful perusal of these pages is richly rewarding in the increase of understanding of what the words we daily use actually mean.

The dictionary includes all the words used in medicine with their meanings, pronunciations and derivations. It is completely up-to-date as is possible only in a book newly published. The fact that every year adds an additional thousand words to our professional language means that any dictionary older than this is practically out of date.

The editors of this revision are Canadians, N. B. Taylor (of Best and Taylor), and A. E. Taylor, a well known classical scholar.

Stedman's Medical Dictionary, 18th Revised Edition, edited by Norman Buck Taylor, V.D. M.D., F.R.S.C., F.R.C.S. (Edin.), F.R.C.P. (Can.), M.R.C.S. (Lond.), in collaboration with: Allen Ellsworth Taylor, D.S.O., M.A., Williams and Wilkins, Baltimore; in Canada, Burns and McEachern, 12, Grenville St., Toronto 2, Ont. 1,605 pages, 600 text figures, 22 plates, semi-flexible binding, thumb-index. Price \$12.50.

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ETHICAL PHARMACEUTICALS

Manual Resuscitation

L. A. Sigurdson, M.D.

In view of the large number of deaths from asphyxia an assessment, from time to time, of our methods of dealing with this emergency is imperative. The treatment of this condition is by means of artificial respiration, either manual or mechanical. The manual methods introduced by Silvester and later by Schafer have stood the test of time and have been responsible for the saving of countless lives. Another method known as the Holger-Nielson method of manual artificial respiration has now been in use for over twenty years and is superior in many respects to any in use up to the time of its introduction in 1931. It was devised by Lieutenant-Colonel Holger-Nielson of Denmark, and has been approved and adopted by the American Medical Association, the American National Red Cross, the United States Department of Defence and the St. John Ambulance Association. In most places where the various methods of artificial respiration have been tested and compared, the Holger-Nielson method has been found to be the easiest to learn, and less physically exhausting to the operator than any other manual method.

Instructions for Holger-Nielson Method

1. Remove the victim from danger, clear mouth of obstruction, place him in the prone position with the elbows bent and one hand resting on the other and the head placed on its side on top of the hands.

2. Take up a position at the head of the victim with one knee near the shoulder and the other foot near the opposite elbow.

3. Place your hands on the patient's back with the thumb touching and both just distal to an imaginary line between the axillae. (Fig. 1).

4. Lean forward pressing your weight on the chest to force the air out of the lungs. Count "one-two-three" while exerting pressure on the back. This is known as the compression phase.

5. Next place your hands under the patient's arms just above the elbows and draw the arms upwards until resistance is felt. (Fig. 2). Count "four" while putting your hands under the patient's elbows and count "five-six-seven" while pulling on the patient's arms. (Fig. 3). This is known as the expansion phase.

6. To complete the cycle allow the elbows to return to the former position on the ground. Count "eight."

To complete the cycle should take about 5-6 seconds, or about 12 cycles per minute. The compression and expansion phases should be about equal in length. A uniform rhythm should be maintained.

When breathing has been initiated, discontinue the pressure on the back, but continue the arm raising and lowering part of the manoeuvre as long as it seems desirable.

Figure 1: First Position

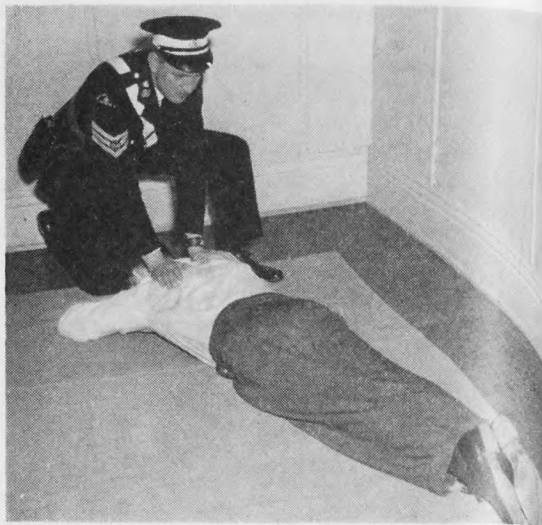


Figure 2: Second Position



Figure 3: Third Position



Special Circumstances

Children and Infants—exert less pressure during the compression phase. In the very young the thumbs are quite sufficient. The rate should be about 12-15 per minute.

Fractures—in cases where there are fractures of the bones of the upper limb, carry out the expansion phase by lifting the shoulder instead of pulling the arms. Where ribs are fractured, omit the compression phase.

Burns—avoid pressure on the burned areas wherever possible.

Summary

A modern, easy and effective method of doing manual resuscitation has been outlined. It is known as the Holger-Nielson method and has to a large extent replaced older methods such as the Silvester and Schäfer methods.

Acknowledgments

I wish to thank Mr. Fred Hadlow of the St. John Ambulance Association for supplying the photographs for this paper.

Article

Alcoholics Anonymous Versus Psycho-Therapy

The emphasis in the treatment of alcoholism has shifted in the past 15 years from a predominantly negative to a positive one. Little by little it has become accepted that merely to sober up and promptly discharge acutely intoxicated patients is at most an emergency measure; to achieve more than temporary sobriety in alcoholics, the problem from which they seek relief in drink must be dealt with. Two positive treatment methods which have emerged with the specific intent of dealing with the alcoholic's underlying personality problems are Alcoholics Anonymous and psycho-therapy. Although neither has achieved 100 per cent success, the results in both cases have been good enough to give support to the belief that alcoholism is a disease which does respond to appropriate treatment.

F. T. Chambers, Jr. (Philadelphia), recently has undertaken to analyze and compare these two treatment measures. Like most therapists who specialize in alcoholic patients, Chambers believes that the root of the disease reaches far back into childhood and that most of the patients are suffering from unconscious feelings of guilt and rejection coming usually from early experiences. Drinking alcohol in itself did not create their problems. Rather it was their neurotic insecurity which brought about their addiction.

The organization of Alcoholics Anonymous is peculiarly well adapted to meet the needs of such

individuals. Most of those who become members are lonely, isolated people who in the course of their abnormal drinking lives have lost their friends and their contact with society. To be welcomed again in an uncritical group, where their past alcoholic history can be worn as a badge of honor if they recover, gives them a decisive boost in the direction of overcoming their problems. This emotional support is so great that some of the members who fail to experience the religious conversion implicit in the A.A. programme are nevertheless successful in staying abstinent. The religious experience, however, is central for the majority of A.A.'s.

The essential elements of the A.A. programme—the admission of defeat, the appeal for help from “a Power greater than themselves,” the attempt at honest self-appraisal, and the espousal of a very deep sense of cause—are in every instance highly therapeutic for the kind of person who becomes addicted to alcohol. Throughout their earlier lives most alcoholics have shown an unusual degree of self-absorption and emotional immaturity. As Chambers defines it, maturity consists in “an individual's ability to deal with, compromise with, and sublimate the primitive infantile tendencies that exist in all of us.” He observes that clinicians have found maturity to be almost always absent in the typical abnormal drinker; an all-powerful infant is still dictating the personality and behavior of the alcoholic patient. In the course of religious conversion or spiritual awakening, however, the individual is forced to abdicate the throne. This in itself is a long step toward emotional growth, which is thereafter constantly strengthened by his sense of constructive usefulness in the A.A. programme, helping new or prospective members.

Finally, Chambers brings forward a new concept in his explanation of the success of A.A. in the United States: Some of its appeal, he suggests, may stem from the “go getter” attitude contained in its emotional approach. “It savors of the credo of the American success story, and it is colored by the aggressive, stream-lined glamorization so woven into American custom. My experience with members of this group has been that the successful men and women are those who have made A.A. the most important thing in their lives.”

In Chambers' evaluation of the two treatment methods, Alcoholics Anonymous is thought of as a simple form of psycho-therapy. The principal distinction between the two approaches is that A.A. tends to accept the alcoholic's emotional immaturity, supplying a crutch for it, whereas psycho-therapy attempts to provide insight into the immaturity and helps the patient toward emotional growth as a necessary adjunct to abstinence.

Psycho-therapy, of course, may include a great many different approaches and techniques. The type which has been found practical and effective in Chambers' experience begins with a personality diagnosis based on a thorough study of the patient's sober individuality. This diagnosis may range all the way from "psychosis" to "normal but having some particular predominant personality characteristic" (for example, aggressiveness beyond the normal degree). A suitable treatment method is adopted on the basis of the patient's classification. Although personality problems vary enormously among individuals, alcoholics show a remarkably similar system of irrational thoughts about drinking. They deceive themselves, to begin with, that they honestly desire to be temperate in their use of alcohol. To them, normality is synonymous simply with drinking normally. They fail to see the obvious fact that they started to drink excessively because of the painfulness of sober reality, and that reality is painful to them because of their maladjustment in it. If alcohol is withdrawn, or if the patient struggles to drink only moderately, the personality problems become all the more unbearable. Hence it is imperative to deal with both the personality problems and the alcohol problem at the same time.

The goal of psycho-therapy is to help the patient gain insight—insight into his unconscious feelings of rejection and guilt, insight into his self-deceptions about drinking, insight into the reasons why he failed to make a tolerable adjustment to reality, insight into the little boy or girl who never grew up emotionally. Without realizing it, he has been asking a drug to change his

ways of thinking, acting, and feeling. This unconscious passivity must be revealed to the patient; he must be encouraged to take an active role toward treatment. With this end in view, Chambers asks the patient to read and analyze the book, *Alcohol One Man's Meat*, and to underscore passages that he thinks might clarify his own problem. He is informed that he and he alone can bring about his recovery and that the therapist can only help him to gain understanding of himself and his problem. If good rapport is established, the therapist can help to anticipate with the patient the emotional growing pains that he will encounter during his struggle to make a readjustment without alcohol. He can thus arm the patient against the extraordinary rationalizing techniques he will invent as an excuse to return to alcohol. If the treatment is successful, the patient will learn to deal with his unconscious feelings instead of running away from them; insight into their source may help to allay a great deal of his personality discomfort.

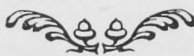
The principal criticism of this type of psycho-therapy is that it is limited to a group who can afford the expense involved. Chambers believes that all who are concerned with mental hygiene problems should be grateful to Alcoholics Anonymous for keeping so many thousands sober who might otherwise clutter up the jails and mental hospitals. A.A. is relieving psychiatrists of an already intolerable load.

References

- Chambers, F. T., Jr.: Analysis and comparison of three treatment measures for alcoholism: Antabuse, the Alcoholics Anonymous approach, and psychotherapy. *Brit. J. Addiction*, 50: 29-41, 1953.

The Committee on Alcoholism for Manitoba

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Children's Hospital, Winnipeg

Ward Rounds

Edited by Wallace Grant, M.D.

Parenteral Fluid Therapy in Infants and Children*

Methods Available

Subcutaneous—1 c.c. hyaluronidase for every 100-200 c.c. solution.

Intravenous—Scalp vein ("24 short bevel needle).

Cut down—1 cm. anterior and proximal to medial malleolus.

Stab—Any available superficial vein in arm, hand, leg, etc.

Normal Requirements

Normal resting state, no fever, no diarrhoea, no vomiting.

Water—c.c. per Kg. body weight per day.

1st week of life—80-100.

Under 1 year of age—125-150.

Older children—50-100.

Very small infants after first week of life may require up to 200 c.c. per Kg. per day.

Electrolytes—(infants per Kg. per day).

NaCl—0.09-0.18 gms.

K—0.06-0.12 gms. K.

Contained in 25-40 c.c. Darrow's K. lactate solution.

Calories—per Kg. per day.

Young infants—60.

Older infants—55.

Children—30

Adolescents—25.

Calorie requirements are difficult to meet parenterally. 5-10% sugar solutions are only available source of calories. To meet calorie needs water requirements is exceeded.

Solutions Available

5 and 10% glucose.

10% travert sugar.

Electrolyte Containing Solution.

Grams per Litre

	NaCl	KCl	Na lactate	K ₂ HPO ₄	CaCl ₂ ·2H ₂ O
Physiological Saline	8.9	---	---	---	---
Ringer's Solution	8.6	0.3	---	---	0.33
Lactate Ringer's	6.0	0.3	3.0	---	0.2
K lactate (Darrow's Sol'n)	4.0	2.7	5.8*	---	---
Butler's Solution	0.6	1.0	2.0	0.5	---
M/6 Na lactate	---	---	18.7	---	---

* (52 c.c. Molar Na lactate solution).

The Potassium ion is very tonic but Darrow's solution may be used intravenously with complete safety if the following three rules are observed.

1. Never give Darrow's solution until the child has voided demonstrating the presence of kidney function.

2. In the presence of dehydration delay administration of Darrow's solution until partial rehydration has been accomplished by means of other fluids.

3. Never administer Darrow's solution intravenously faster than 5 c.c. per Kg. body weight per hour. This slow rate is best achieved by diluting the required amount of Darrow's solution with the remainder of the water requirement in the form of 5% glucose or 10% travert sugar.

A. Maintenance regimen for infants and children.

(Child unable to take fluid by mouth. No dehydration, no fever, etc., i.e., post operative).

Infants—Darrow's solution—30-40 c.c. per Kg. mixed with 5% glucose or 10% travert sugar 100 c.c. per Kg.—run mixture continuously over 24 hours. Repeat each 24 hours if necessary.

Children—Darrow's solution 20-30 c.c. per Kg. per day 5% glucose or 10% travert sugar 60-70 c.c. per Kg. per day. Fever, etc. will increase requirement considerably, up to double the amount in infants.

B. Infantile Diarrhoea

Accurate treatment can be controlled clinically without recourse to serum chemistry if you are sure of the diagnosis. This is the commonest cause of severe dehydration in infancy.

1. Make sure there is a history of diarrhoea.

2. Assess degree of dehydration (tissue turgor, depression of fontanel, sunken eyeballs).

3. If dehydration is severe, treatment is an emergency. Do not delay the institution of I.V. therapy. Half an hour may make a difference in life or death. Stop oral feedings.

4. If dehydration is so severe that the child is in collapse (greyish cyanosis, failure to respond) give initially 15 c.c. whole blood or plasma per kgm. body weight. Run this in rapidly i.e. ½ hour. Then go to (5).

5. If dehydration is severe but the peripheral circulation is still fairly good transfusion is unnecessary and electrolyte therapy is begun at once.

A. Mix 10 c.c. M/6 Na lactate per kgm. body weight with an equal volume of physiological saline. Run in about one hour. If the child voids during this period and he almost invariably does, proceed to B.

B. Mix 80 c.c. per kgm. body weight Darrow's solution and 120 c.c. per kgm. body weight 5% glucose or 10% travert sugar. Adjust I.V. to run slowly so that this volume runs in over the next 24 hours.

* Standing orders prepared by the staff of the Children's Hospital, Winnipeg.

C. If the child fails to void in A, start 5% glucose and run slowly until he does void then proceed to B.

6. On succeeding days of treatment of severe cases and on the first and succeeding days in moderate to mild cases give Darrow's solution 40-50 c.c. per kgm. body weight mixed with 120-130 c.c. per kgm. body weight 10% travert sugar.

7. Oral feedings 1-2 Darrow's solution and 5% glucose or 10% travert sugar for 6 to 12 hours, then dilute skim or 2% milk. Can usually be started after 24 hours in moderately severe cases, 48 hours or longer in very severe cases.

8. I.V. therapy must be continued as long as child is unable to maintain hydration on oral feedings alone. Usually 24-48 hours in mild to moderate cases, three to four days or rarely much longer in severe cases.

9. 50 mgms. vitamin C, 1 mgm. thiamine, 5 mgm. Kavitan I.V. each day child is on I.V. Therapy.

10. If tetany occurs—5-10 c.c. 10% Calcium gluconate intravenously very slowly.

C. Diabetic Coma—Serum biochemistry essential for adequate treatment.

First six hours—1. Initial blood sugar and CO_2 C.P. If diagnosis is positive, begin treatment immediately.

2. Crystalline Insulin—Usual amounts required in first 6 hours. Under 5 years—25-100 units. 5-15 years. Blood sugar less than:

500 mgm.%—100-150 units
500-700 mgm.%—150-200 units
750-1000 mgm.%—200-250 units
Over 1000 mgm.%—300 units

An occasional patient with insulin resistance will require much more.

For infants give 5 units every hour, for older children 10-20 units hourly depending on size of child, initial blood sugar and sugar concentration in hourly urine specimens.

All severe cases should have insulin I.V. as well as S.C. or I.M.

3. Fluid—(a) M/6 sodium lactate. Amount calculated from CO_2 defic.it.

$(60 - \text{CO}_2 \text{ C.P.}) \times .5 \times \text{Body weight in Kg.}$

(b) Normal saline 16-20 c.c. per Kg. per hour for 2-3 hours then more slowly.

4. Urine specimens hourly for sugar and ketones. Be sure bladder is emptied each time. Catheterize if necessary.

5. Gastric lavage if any evidence of gastric dilatation.

At six hours—1. Repeat blood sugar and CO_2 .

2. Crystalline insulin 0.5 units per kgm. (More or less depending on blood and urine sugars).

3. More M/6 sodium lactate if indicated by CO_2 deficit.

4. Plasma or whole blood if necessary for shock persisting low blood pressure, anuria or anemia.

5. Potassium deficits in diabetic coma may be very large. Serum potassium levels (high in early coma during dehydration in contrast to low intracellular levels present at that time) and phosphorus levels drop during deposition of glycogen under the influence of insulin.

After initial hydration measures (first six hours) potassium should be supplied. If the patient can swallow 1 gm. K Cl can be supplied every hour for 4 dose by mouth.

If the patient is unable to swallow 6-12 hours after initial treatment is begun potassium must be supplied parenterally until he can swallow 25-40 c.c. per Kg. Darrow's solution mixed with an equal volume of 5% glucose may be given parenterally over the second 6-12 hours. Excess glucose provided in this way must be covered by insulin at about 1 unit per 2 grams glucose.

Use potassium containing foods (fruit juices, meat broth) as soon as possible.

Serum CO_2 and blood sugar determinations are desirable every 4-6 hours. Urinalyses every 12 hours until recovery is established. As the sugar levels fall, glucose must be provided to prevent hypoglycemia.

The total fluid requirement during the first 24 hours may be as much as 150 to 250 c.c. per Kg.

D. Adrenal Cortical Deficiency

A rare cause of dehydration in infancy. Look for evidence of virilism. Adrenogenital syndrome in the male, pseudohermaphroditism in the female. Vomiting is characteristic. May be mistaken for pyloric stenosis.

There are large losses of Na Cl through the kidneys. Potassium is retained. Tendency towards hypoglycemia.

Serum electrolyte determination valuable in diagnosis and treatment.

Parenteral Na Cl, relatively large dose, plus added glucose and desoxycorticosterone.

Adrenal cortical extract, blood transfusion during acute crises.

Never give potassium in adrenal cortical deficiency.

E. Renal Failure

Serum electrolyte and B.U.N. estimations essential for accurate treatment. Fluid administered according to needs from losses in stool, sweat and respiration. Relatively small volume. Be sure, however, that child is not dehydrated. Electrolyte (Na, Cl, HCO_3) given cautiously according to serum levels. Potassium should never be given to patients.

Treatment only useful where the renal failure is temporary (as in lower nephron nephrosis) and where return of renal function can be expected. Child is kept alive for a sufficient length of time.

Medical History

J. C. Hossack, M.D., C.M. (Man.)

A Tudor Doctor Tells His Story*

(I asked my audience to close their eyes and imagine themselves translated through Time and Space to the England of the first Elizabeth. Once there we would call upon a practitioner of the time. In twenty minutes we could not expect to learn a great deal, but at least we could hope to get some sort of idea as to the training, conditions of practice, etc., then in vogue.)

(What follows is factual. Elementary education, professional instruction, ethics, economics, the State Medicine of the time, the search for a panacea and so on are as set forth in contemporary documents. Fiction enters only in adapting to one imagined individual the experiences of many real persons. There are no direct quotations apart from a portion of the concluding sentence and a line from Francis Bacon.)

Now first as to my schooling. My earliest learning I got in the grammar school where I was in my place by six o'clock and did my exercises until nine, when there was an interval of fifteen minutes which I spent in breaking my fast and in recreation with my fellows. At the end of the intermission the pupils hastened to their seats there to remain until eleven o'clock or somewhat later when we were dismissed to return again at one very promptly.

From one till three we were at our books. Then came an interval of a quarter hour for our necessities and play; after which we continued our learning until about half an hour after five, when we read a chapter, sang part of a psalm and heard a prayer used by the master. Thus from dawn to dusk we were kept busy.

But the intermissions at nine and three were offensive to some, and these reproached the school, saying that the pupils did nothing but play. But there were others, who, methought, held wiser views, for they said that the pupils should have weekly one part of an afternoon for recreation, sobeit no holy day was in that week.

We were taught to read and write and to calculate, but mostly our study was of the Latin tongue wherein I grew expert so that, verily, I believe that had I met Ovid or Cicero we could have conversed with understanding.

Now, when I was about fifteen years of age chance pointed out to me what should be my vocation. For there was in the town a man that had to be cut for the stone, and the surgeon, when he saw me standing by, put a basin in my hand and bade me hold it, and when I saw how deftly he worked, and had the stone out in scarcely anytime, and gave the patient much comfort, I said within myself that I would learn his craft.

Now, I saw many practicers who were without training and were mere mountebanks. These had often a large practice albeit they were without learning, and had cunning only and much boldness. But there were others who had been to universities and these had wisdom and learning. Therefore, having a good knowledge of Latin, and some Greek also, I determined to go to a university. But, for a season, I was apprenticed to the surgeon whom I had aided for he practiced physic also, even as did Hippocrates who, said he, was the one whom all should strive to be like. And by him I was instructed in the gathering and use of simples, and in the nature of many maladies and in the treatment thereof.

But the best masters were in France and Italy so thither I went. And, so that I might the better learn the manners and customs of the countries through which I passed, I sojourned for a space with a band of travelling students; for it was the custom for youths in search of knowledge to go from place to place in companies, the which were made up of older lads who were masters of the younger boys, who served them by all manners of thefts of monies and geese, goats, fruits; and, of a truth nothing was safe from them unless it were held by nails or strong locks. In such fashion did these travellers supply themselves with food and drink.

But there were other lads who liked not such ungodly ways and these gathered alms by singing hymns and other sacred songs before the doors of houses and thereby found means of refreshment. Yet, to my mind, these snivelling psalm-singers were greater rogues than the others, and prospered accordingly.

Now, when these youths had accomplished their years of schooling they sought entrance to a University where they might learn the art of physic. To gain this each had to give proof that he was a Master of Arts or had been well instructed in philosophy. Before any one could practice it was necessary for him to become a baccalaureus of the University which was his reward after he had listened carefully to lectures on the Canon of Avicenna, the Aphorisms of Hippocrates and part of Galen. Moreover, he had for six months or more to follow the practice of a doctor. And furthermore he had after a while to instruct the scholars, in which duty, should he be careless, he was subjected to a fine. And in this fashion the student passed three years.

Now, should a baccalaureus desire to advance to the degree of doctor, it was necessary for him to deliver lectures for one year, and likewise himself to attend the lectures of the doctors.

*Read before Section on Medical History, at Annual Meeting C.M.A., June, 1953.

Furthermore there were disputations upon subjects taken from the lessons and these were held in the presence of the Dean and of the Doctors. When such formalities had been complied with and the proper fees paid (and they were large) the baccalaureus or doctor might seek permission to practice.

But for entry to a university other things were needful beyond the Master's degree and excellence in philosophy; for the teaching and the professors were determined by the students, and they further selected those that might study with them. And this they did at a ceremony in which candidates were compelled to participate. And in this ritual all manner of wild tricks were played upon them, for they were stripped and many things were done to them for their humiliation and for the entertainment of the older students; and they took an oath and sealed it by drinking from vessels filled with excrement and like filthy things. Yet thus alone might one enter the faculty.

Our studies were of Galen and Rhazes and Avicenna and Hippocrates chiefly, and on these we heard lectures daily for two or more hours at a time, which was wearisome, for much talking is a bringer of sleep. Yet these sessions were not without relief, for among the students were pranksters who distracted our attention by appearing in carnival and like fantastickal costumes and who played sundry tricks which were offensive to the professors so that an ordinance had to be passed forbidding such things.

And we visited the sick with the doctors and learned their practice. Likewise on occasion we saw anatomies made on human corpses but of these not many, for such were hard to come by; and oft we had of ourselves to find bodies by digging them up after burial or climbing the gallows when a criminal had been hanged. And such things had to be done quickly for the worms and the birds were our rivals, and the church and the law were against us also.

Yet once in a year, or peradventure oftener, there was a public dissection, for the doing of which it was needful to have a dispensation from the Pope. But among the Germans, where the Pope was without authority, the sanction of the lord or the magistracy sufficed.

Now, this is the manner in which these things were done. First, the corpse was borne into the place of dissection upon the lid of his coffin or box in which the executioner had placed him. Then the professor read aloud the authority and stamped upon the breast of the corpse the seal of the university, which done, a barber or some other mean person cut the body; and while the professor read from Galen, the ostensor pointed with his wand to the parts whereof the professor spake in his reading.

After the anatomy had been done, those who witnessed it were regaled at an entertainment

whereat the guilds of fifers and trumpeters discoursed music, and plays were enacted for their enjoyment and there was also much eating and drinking. But some deplored this revelry and liked it not that anatomies should be looked upon as spectacles and entertainments. And one such was Fabricius who built at his own cost a Theatre of Anatomy in Padua, and thereafter others were built.

Moreover not all did agree that only bare hands should touch the corpse; and Vesalius, when he did see how clumsily the anatomy was being done in one instance, took from the barber his knife and did the task himself. And thereafter he made many dissections with his own hand and had drawings made which he printed, so that all might see even though a body was not to be had.

And Vesalius, further proved that many things whereof Galen had written were not so which brought about a great uproar; for there were some who would not believe their own eyes but said, when things were found different, that the fault lay not with Galen but with the corpse. And so was Vesalius condemned, and not the least by Sylvius which was his master as a student. And this same Sylvius it was that so clung to his gold that verily he would not even purchase fuel but warmed himself by playing ball in his chamber.

Now, bodies were so hard to come by that the professors had much difficulty; and at Montpellier I saw the strangest anatomy that any man ever saw; for Rondolet, who was the professor, desiring that his students should not remain ignorant of what was to be seen, and there being no other corpse to be had, and his son in the meantime having died, he did an anatomy upon the child the which brought tears into the eyes of many who watched, for all knew the master to be the gentlest of men and the tenderest of fathers; yet spared he not his own feelings sobeit his students might be helped.

As for Fallopius it is said of him that he disdained not to accept living criminals whom he poisoned so that anatomies might be made of them. And he saw in such bodies so much more than any man seen before him that Vesalius was moved to sadness when he heard thereof, for while he had dallied at the court his pupil had been at work and had overtaken his master.

But I must tell thee of a new thing which I saw at Padua and which, methought, was passing good. For there were in that city two professors of medicine who were physicians in charge of the health of the old men and women of the place and their names were Albertino Bottoni and Marco degli Oddi. And when one of these persons which was under their care came to die, they would make an anatomy of the corpse and learn therefrom the place and nature of the disease whereof the person had died.

But this practice continued not for long; for it became noised abroad among the women that the wombs of the corpses were taken from them and carried off. And this occasioned much disorder and anger, the which was fostered and furthered by the professor of anatomy, who was wroth that any other than himself should do anatomies and said publicly that physicians were not fitted to do such.

And the women made a great clamour saying, that if their wombs were taken from them in that fashion, when the day of resurrection came they would by reason of their imperfection be denied the joys of Paradise, or even admission thereto, which was not to be borne. And so the professor and the women had their way and the practice was forbidden which methinks, was a sorry thing, for verily the dead can oft speak more clearly than the living.

Now, were it not that time presseth I would tell thee of many great and notable doctors such as Servet who fell afoul of the church and was burned; and Rabelais who was a great mocker; and Paracelsus, who was the marvel of his age; and others of the like but peradventure of them thou knowest. And thou knowest also of the great jealousy that existeth between men of our calling. Yet it may not be known unto thee concerning Martin which was called Lux Mundi, and Simon Pistorius when they were professors at Leipsic and who, when they did meet, spat at each other.

Now the cause of their falling out was this. Martin held that the French Evil was endemical, and Simon that it was epidemical; and Martin taught that it was contagious which Simon denied; and so they fought upon the matter and their pupils also. And no one knoweth where it might have ended but Simon, who had the ear of the Elector, being his physician, wrought upon him to build a new university which he did at Frankfort. And when the Light of the World heard what was afoot he bided him to Wittenberg there to shine with greater brightness.

Now the professors travelled much either seeking larger opportunities or in search of richer preferments. And some were forced to wander when they failed of election by the students who, each year, chose their teachers.

Some of them gathered great wealth as did Fabricius who built the Theatre of Anatomy and felt not the cost; and Vesalius, also, was rich. But many were poor and had to turn to other things so that one found them as printers, or makers of calendars, or casters of horoscopes or as keepers of lodgings for students. Peradventure it is known unto thee that the great Melanchthon had not wherewithal to buy for his wife a new garment for eight years; a fact that distressed the woman but was grievous also unto her husband, for a wife

that lacketh raiment seldom is silent upon the matter.

Now, as I journeyed I found much competition between physicians and mountebanks. For it would seem that all manner of impudent people set themselves up as skillful physicians who were but tooth-drawers, alchemists, distillers, peddlers of theriac and even ruined tradesmen and old wives. And those would say that they knew more of the art of physic than the doctors themselves. And verily the weakness and credulity of men is such as they will prefer a mountebank or witch before a learned physician.

Sometimes the practice of these impostors was so great that no reputable physician could gain a living beside them; and so it was in a town through which I passed wherein were two executioners and these, when they were not employed in the hanging of felons or the cutting off of heads were thronged by patients; for verily these ministers of death had a great following; and I wondered how many graves they filled beyond the number to which the state consented. But when I saw them that practiced in the place and heard them discourse I questioned within myself which were the deadlier, those whose office it was to end life but who might on occasion prolong it, or those whose mission it was to prolong life but who often ended it, such was their ignorance and bungling.

Now, on my journeyings I foregathered with a student whose name was Platter and who was a German; and he told me how he had learned much from his wife's father who, he said, was a skillful surgeon and a butcher. And verily it would seem that as a butcher he made an anatomy of the animals he killed, and thereafter applied what he had learned in his chirurgery, in which he had much practice.

And he told me, further, of another man whom he knew that had a great following among women with child. For it seemeth that when his own wife came to child-bed she was long in travail and the midwife could not help her. And so other midwives were called, to the number of thirteen, and many cutters for the stone also. Yet it seemed that the woman would die.

Now, by calling, this man was a sow-gelder, and when he saw that his wife was like to die, he went before the Governor and besought him for permission to open his wife as he would a sow; and when this was granted he did so, and his wife lived to bear him many children after the natural fashion. And so it came that between the gelding of sows and the care of women in travail he had a large practice. And there was another man that was also a sow-gelder and much cursed by a lascivious daughter, whom he gelded as he would a sow, for verily she would else have filled his house with her bastards,

Now, of physicians of repute the richest are they who attend upon the persons of princes and courtiers, and for the most part, this practice be simple, for many do ail as the result of surfeiting themselves with food and drink. So the task of their physicians be chiefly the giving of purges, the letting of blood, and the like. But there are times when their illnesses are more grievous and here skill counteth for much; and this was made clear as when Master Ambrose Pare waited upon the Marquis d'Auret whom he found rotting in his bed surrounded by a plenty of physicians and chirurgeons who had neither courage nor skill, and would have wrought the death of their noble patient had not Ambrose come to his aid.

Now the chirurgeons receive the highest fees but close to them are the sellers of drugs and last of all the learned physicians; for the physician to her late Majesty was given forty pounds in the year, but the apothecary to her present Majesty hath received eighty pounds for a quarter of a year. And lest these sums mean naught to thee let me tell thee that a single pound will purchase 240 chickens or 60 gallons of the best wine.

And there are other ways whereby a man of dilligence may become rich and one of them is by the treatment of those who have the French Evil. And many impostors profess to have a cure for this distemper and have become rich. Nor do the more reputable physicians disdain the practice, and among them a Frenchman called Hery who was seen to genuflect whenever he passed the statue of King Charles the Eighth; and when he was asked why he did this he answered, "Truly, Charles is a good enough Saint for me, for since he brought the pox into France I have gathered a hundred and fifty thousand livres."

But concerning this sickness called the French Evil I have more to say, for it ravageth the land in a fearsome and fell manner, causing a rottenness in all parts of the body so that men lack noses and lips and eyes therefrom, and their skins be covered with all manner of loathsome impostumes. And some think that it be a plague sent upon us by God for reason of our wickedness; and others say that it cometh from the Devil who is being loosed from his bonds according to the Scripture. But when I was in Verona I spake upon the matter with Master Fracastoro who sayeth that it differeth not from other plagues in the manner of its coming; for, saith he, the seeds of contagion (seminaria contagionum) albeit we see them not, pass from him that aileth unto others in whom they grow after the manner of fermentation in wine.

And likewise he hath written a book upon this disease wherein a youth called Syphilus bringeth upon him the anger of Apollo and is thereby destroyed, even as in Ovid his fable, yet in another fashion. But he told me that this work was

written as by a poet nor had he taken that knowledge which is set forth in his other book entitled "De Contagione" wherein he dwelleth upon the little creatures or seeds wherefrom diseases do spring. Yet, for myself, I know not, nor can I blind myself unto mine own experience.

Now there be some who say that there is naught to be learned from Astrology but I do not hold with them at all times. For the French Evil as thou knowest, afflicts those whose lives are evil and dissolute, such as soldiers, beggars, harlots and the like. Now the god of such foul, dishonest creatures hath from all time been the god Mercury; and it seemeth no great marvel that the medicine which is under his sign should avail much in the treatment of their distemper. And so hath it proved to be.

Indeed, there be some who think that Mercury cureth all things which is not so. Yet, of a sooth, a panacea there may be though what it is I know not, though great search be made for it. And some swear that naught equalleth mummy when it be mixed with treacle; and there are others who see it in the moss that groweth upon the skulls of them that are rotting upon the gallows.

And many hold that great virtue lieth in the horn of the unicorn the which is hard to come by; for only a virgin can capture this beast. It is said, when the unicorn seeth a virgin, he is so seized with amazement that he noticeth not the approach of his captors, and so is taken. Yet we know not for certain whence cometh his amazement, whether it be at seeing a two legged creature that lacketh a beard, as St. Hildegard sayeth, or at seeing a grown woman who called herself chaste; for, verily, in this day and generation that is a marvel in itself, and scarce to be believed save in the very young.

But Master Ambrose, who knoweth much, sayeth that there be no virtue in unicorn horn nor in the moss from a skull nor in any thing. And he is to be believed, methinks, because of his great works; for I have seen marvellous things at his hands as when he tieth cut vessels with a ligature which is something new and, when he healeth wounds without the use of fire. Yet when he said publicly that the horn of the unicorn was without virtue, the Faculty of the University were enraged and said that he was but a chirurgeon which is a mean sort of calling, and therefore he had no authority to speak against medicines for it was not permitted unto him to employ them not, indeed, could he practice his own base art save when a learned physician bade him do so.

But I have seen and heard of great marvels wrought by the knife and even on persons who had been cast into a deep sleep so that they felt not any pain. And I have it from Guy de Chauliac that such can be done, and have myself seen the belly opened and the guts green and black. And

when this was so the chirurgion would cut away the discoloured portion and sew together the ends of the gut very cunningly over a tube of silver or, peradventure, the windpipe of an ox; and, after much cleansing with wine, he hath sewn up the cut in the belly; and I have seen such persons live and labour.

Now you may ask: how is this sleep produced and I will tell thee even as I myself have seen it. A sponge is taken and soaked in the juices of hemlock and poppy and other such herbs; and when it is dry it is steeped in boiling water and held beneath the man's nose. And he who holdeth it sayeth: "Breathe in these vapours and there will come upon thee a sleep, yea a deep sleep which even now stealeth upon thee, therefore breathe deeply of it and sleep." And when he that done this for a while, behold the man goeth limp and feebleth not the knife. And so have I seen it done, yet not by many, for the chirurgions doubt its power and, instead, bind their patients with ropes or have strong men hold them. But oft strong wine is given, in which is mingled mandragora and poppy and like juices which is very comforting.

Now as I journeyed I spoke to many and some

said "Behold, the good physicians are for the rich only. The poor must take them that have no access to the palace, or peradventure must go to such wandering physicians as may be mere impostors." Yet not everywhere was this so, for I found, chiefly among the Germans, towns that did hire physicians and set fees for them and there the poor were treated without cost. Indeed, in one city no other doctor might vie with the one chosen by the city and he was given lodging and servants and money also. And as money changeth in its value let me say that, for ten pounds in the year, one might buy about nine thousand gallons of beer or peradventure six hundred pigs which was a goodly recompense.

Now, peradventure I have left thee with more questions than I have answered but time presseth and I see that thou would'st be gone.

And thus to conclude, for that it grows late, and I would not stretch thy patience. I hope that they to whom thou tellest this will censure mildly thy fantastic labour. Peradventure we may hereafter please their sense to a better purpose. And so I will in the meantime pray for your prosperity and end with the English phrase, "God give you good night."

Maimonides The Physician

Rabbi Arthur Chiel

This year marks the 750th anniversary of the death of Maimonides. Born in Cordova, Spain, in 1135, Moses Ben Maimon, most often referred to as "Rambam," became the outstanding Hebrew philosopher and theologian of the Middle Ages. Because of his reputation as a religious thinker to whom Jewish communities the world over turned for guidance, it came to be said of him "from Moses to Moses none hath arisen like him."

In Spain where he spent the first thirteen years of his life Maimonides studied with his learned father and with Arabic scholars. (Spain was then under Moorish rule). When religious persecution overtook Spanish Jewry after the conquest by the fanatical Alhomades, Maimonides, with his family, fled to North Africa, then to Palestine and finally to Fostat in Egypt where he established an extraordinary reputation as physician, eventually receiving an appointment as personal physician to Al-Kadi al-Fadil al-Baisami, vizier to Sultan Saladin. When Saladin was succeeded by his eldest son, Alfadal, Moses Maimonides was chosen to be his personal physician. One Arabic historian indicates that Maimonides declined offer of a similar post when it was offered to him by Saladin's arch-enemy, Richard the Lion Hearted of England.

In spite of an unusually busy and successful career as a physician, Maimonides was able to write original and voluminous works in Hebrew law and theology, his outstanding creations being the *Mishneh Torah*, a Talmudic compendium of unusual clarity, and *Moreh Nebuchim*, Guide to the Perplexed. In addition to these and other religious works Maimonides wrote extensively on the subject of medicine. He was a staunch advocate of simple treatment through dietetics in preference to drug treatment. He is known to have written at least ten medical works dealing with subjects as diverse as asthma, poisons by animals and insects, hemorrhoids, coitus, epilepsy and drugs.

The selections that follow are a letter to Samuel Ibn Tibbon, who translated Maimonides' "Guide to the Perplexed" into Hebrew and a "Prayer for Physicians," by Maimonides.

Maimonides' Day

NOW GOD KNOWS THAT IN ORDER TO WRITE THIS TO you I have escaped to a secluded spot, where people would not think to find me, sometimes leaning for support against the wall, sometimes lying down on account of my excessive weakness, for I have grown old and feeble.

But with respect to your wish to come here to me, I cannot but say how greatly your visit would

delight me, for I truly long to commune with you, and would anticipate our meeting with even greater joy than you. Yet I must advise you not to expose yourself to the perils of the voyage, for beyond seeing me, and my doing all I could to honour you, you would not derive any advantage from your visit. Do not expect to be able to confer with me on any scientific subject for even one hour either by day or night, for the following is my daily occupation:

I dwell at Misr (Fostat) and the Sultan resides at Kahira (Cairo); these two places are two Sabbath days' journey (about one mile and a half) distant from each other. My duties to the Sultan are very heavy. I am obliged to visit him every day, early in the morning; and when he or any of his children, or any of the inmates of his harem, are indisposed, I dare not quit Kahira, but must stay during the greater part of the day in the palace. It also frequently happens that one or two of the royal officers fall sick, and I must attend to their healing. Hence, as a rule, I repair to Kahira very early in the day, and even if nothing unusual happens, I do not return to Misr until the afternoon. Then I am almost dying with hunger. I find the ante-chambers filled with people, both Jews and Gentiles, nobles and common people, judges and bailiffs, friends and foes—a mixed multitude, who await the time of my return.

I dismount from my animal, wash my hands, go forth to my patients, and entreat them to bear with me while I partake of some slight refreshment, the only meal I take in the twenty-four hours. Then I attend to my patients, write prescriptions and directions for their various ailments. Patients go in and out until nightfall, and sometimes even, I solemnly assure you, until two hours and more in the night. I converse with and prescribe for them while lying down from sheer fatigue, and when night falls I am so exhausted that I can scarcely speak.

In consequence of this, no Israelite can have any private interview with me except on the Sabbath. On that day the whole congregation, or at the least the majority of the members, come to me after the morning service, when I instruct them as to their proceedings during the whole week; we study together a little until noon, when they depart. Some of them return and read with me the afternoon service until evening prayers. In this manner I spend that day. I have here

related to you only a part of what you would see if you were to visit me.

Now, when you have completed for our brethren the translation you have commenced, I beg that you will come to me, but not with the hope of deriving any advantage from your visit as regards your studies; for my time is, as I have shown you, excessively occupied.

Prayer for Physicians

O God, Thou hast formed the body of man with infinite goodness; Thou hast united in him innumerable forces incessantly at work like so many instruments, so as to preserve in its entirety this beautiful house containing his immortal soul, and these forces act with all the order, concord, and harmony imaginable. But if weakness or violent passion disturb this harmony, these forces act against one another and the body returns to the dust whence it came. Thou sendest then to man Thy messengers, the diseases which announce the approach of danger, and bid him prepare to overcome them. The Eternal Providence has appointed me to watch o'er the life and health of Thy creatures. May the love of my art actuate me at all times, may neither avarice, nor miserliness, nor the thirst for glory or a great reputation engage my mind; for, enemies of truth and philanthropy, they could easily deceive me and make me forgetful of my lofty aim of doing good to Thy children. Endow me with strength of heart and mind, so that both may be ready to serve the rich and the poor, the good and the wicked, friend and enemy, and that I may never see in the patient anything else but a fellow creature in pain.

If physicians more learned than I wish to counsel me, inspire me with confidence in and obedience toward the recognition of them, for the study of the science is great. It is not given to one alone to see all that others see. May I be moderate in everything except in the knowledge of this science; so far as it is concerned, may I be insatiable; grant me the strength and opportunity always to correct what I have acquired, always to extend its domain; for knowledge is boundless and the spirit of man can also extend infinitely, daily to enrich itself with new acquisitions. Today he can discover his errors of yesterday, and tomorrow he may obtain new light on what he thinks himself sure of today.

O God, Thou hast appointed me to watch o'er the life and death of Thy creatures; here am I ready for my vocation.

Editorial

J. C. Hossack, M.D., C.M. (Man.), Editor

The Generalist

Recently I came across an article in which the word "generalist" was used as a synonym for "General Practitioner" and "Family Doctor." It is a useful neologism. The other designations are not only admittedly clumsy but they lack that extra dignity which the suffix "ist" confers. "What is your specialty?" asks one. "Oh, I'm a generalist" comes the answer, so much more in keeping with the times than the humble "I'm just a family doctor" or "I'm only a G.P."

The new designation is admirably qualified to raise the morale and amour propre of those doctors who suffer from feelings of inferiority when they contrast themselves with specialists. And the effect upon the laity will also be a desirable one. No longer need they, almost apologetically, confess that they are attended by a general practitioner. Now they can brag that even for their simplest ailment they do not hesitate to call in a generalist.

A good generalist ranks with the best specialist and is much more useful because of his much wider scope. The specialist is of value on occasion. The generalist is of value in all circumstances. If knowledge could be rated in some fashion, say in "kens," then the number of "kens" possessed by a good generalist would not fall short of and might even exceed the number owned by a good specialist of any sort. The difference would be in the elements that went into the calculation. The kens of the specialist are concentrated in a small area while those of the generalist embrace the whole body. Naturally width and depth exclude each other; but, in the case of the generalist the degree of penetration is quite deep enough to indicate when it is insufficient for the case in hand, and the area illuminated is so large that troublesome factors beyond the portion which seems most to require attention are not overlooked.

Someone has said facetiously, that a specialist is one who knows more and more about less and less, and reaches his acme in one who knows everything about nothing; while the practitioner, on the other hand, as he extends his scope, comes to know less and less about more and more, the ultimate being reached in one who knows nothing about everything. Thus the two extremes meet. It is, of course, true that the number of "kens" of which anyone is capable of acquiring is limited; and there are some who assert that success in practice depends very much and very often upon what one might call non-professional kens. These factors, however, are not the peculiar possession of either group, and so it is possible to find among

the successful those who border on the extremes.

It would appear that the American College of Surgeons views unhappily the activities of the generalists. Some time ago an official of the college went so far as to say that where generalists have free access to operating rooms the quality of the work done is bad and its amount excessive. This roused the American Academy of General Practice vehemently to denounce the assertion and to voice a demand that the American Medical Association should take disciplinary action against the college.

In the United States it is estimated that 70% of all operations are done by generalists and probably the percentage here is the same. The same or an even higher figure applies to medical specialties. Coronary occlusion, for example, is so common an ailment that only a fraction of the cases treated come under the hands of the specialist. The generalist can do quite as much for Parkinsonism or disseminate sclerosis or stroke as can the specialist and is quite competent to recognize these ailments. And so it is for other medical and surgical subdivisions. As the generalists increase in knowledge and experience they will encroach more and more upon the domains of the specialists. What they do not know or cannot do now, they are striving to learn and, when they have learnt they will practice what they have learnt.

More thorough undergraduate teaching and here at least, the continuing post graduate course furnished by almost daily instructional meetings, stirs the generalist to learn more and to do more. Events will at all times prove that his judgment has been poor or his technique faulty. But specialists, also, have erred in these matters. The Latin proverb "experientia docet" can be freely, and accurately, translated as "experience does it." Until experience has been gained assistance is needed; and nowhere can the specialist prove himself of greater value to generalist and his patients than in helping the generalist to gain the experience he needs.

It should never be forgotten that while the generalist may know less about the process he knows a very great deal more about the patient. Therefore, even in the operating room, he is still a principal actor, for this is but one stage-setting out of the many that make up the drama of the patient's life. The surgeon of the moment, important though he be at the moment does not occupy the stage for long.

Specialism is largely the result of popular demand. Self-diagnosis and free access to specialists'

consulting rooms keep these full. The lay press has taught the public that medicine is too vast a subject for anyone to know more than a fraction of it, that the study of a single region can occupy a lifetime and that only one who has made such a study can recognize and treat the ailments of each region. Thus the body has been resolved into a congeries of semi-autonomous states which are governed by "ologists." It is almost a return to the medieval system with specialists replacing the signs of the zodiac. In this scheme "the doctor" is not represented by an individual but by a group of individuals.

But, again at the direction of the lay press and the public influenced by it, the pendulum is swinging in the other direction. Now emphasis is being placed on the "whole man" who turns out to be something more than the sum of his parts. Lay writers are beginning to find good to say of the practitioner and the concept of holism. And, guided and directed by them, the public can be counted on to switch their allegiance from the specialist who knows much about little to the generalist who knows a good deal about everything medical.

So long as generalists concerned themselves almost exclusively with the ills of the flesh, their practice was incomplete. But now there are few who remain unfamiliar with the mental processes which underlie disease, and the generalist has the tremendous advantage of knowing his patients as persons and as members of families and as social units.

This advantage, together with his increased knowledge of organic processes emboldens him to invade more and more the territory of specialism. At the moment the work of the specialists is increased by the number of self-directed patients who could be adequately cared for by generalists. If the people should decide to consult a specialist only when advised by a generalist to do so, specialism would suffer drastically, and specialists would become merely technical assistants or occasional advisors.

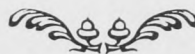
The fact remains, however, that no one head can hold all medical knowledge, and there is

another fact—that each doctor has a special interest. To this must be added the desires of the public to enjoy the wider understanding of the generalist and also the more concentrated knowledge of the specialist. The only way in which all these things can be brought together is in group practice by generalists, all of whom are accustomed to see a person rather than a patient, and each of whom can speak with special authority on some special part.

Perhaps that will be the practice of the future and perhaps that is how specialists will in the future evolve; not as now when the part is almost greater than the whole, because scarcely anything but the part has been studied, but only after a long acquaintance with the whole has shown that it is greater than even the sum of its parts.

In the most progressive colleges psychiatry is being taught *pari passu* with other disciplines from the first year on. Further, students are being taught to understand themselves. The rising generation is going to be well served because its doctors will, out of an understanding of themselves, be well equipped to understand their patients. Home visits, night visits, personal intimacy, all advantages enjoyed by the generalist alone, greatly amplify an understanding of the ailment, profoundly modify the therapeutic approach and lead to the development of confidence and friendliness.

Is this the Twilight of the Gods? As generalism grows in importance in the lay mind, specialism must shrink. The American College of Surgeons frowns upon the generalists who leave to the collegians only a quarter of their specialty. And the generalists retaliate by further encroachments. Other special fields are also being successfully invaded. What may happen to generalists in the future will depend to some extent upon how well they equip themselves but to an even greater extent upon the public attitude to what they may regard as an extensive specialty sufficient unto itself except in extraordinary cases. There will always be a need for specialists but their proportion to generalists is likely to decline.



The Testimonial Dinner

A very large number of the doctors of Winnipeg and places outside the city gathered on the evening of the 16th of March to do honour to their friend, Pat McNulty. By general acceptance Pat was the "Doctors' Doctor of 1953," for no individual in the profession had done more for its members as a whole than had he.

The occasion was Pat's retirement from active participation in the executive duties which have for so long filled his time and attention. As Trustee, as Treasurer and finally as President of the Executive he has given long, valuable and unstinting service. And now, with this record of achievement to his credit, he steps down to mingle with us as a member only.

It would be a pity if the wealth of experience he has gained should remain only in his own mind. Men such as he should be promoted to a sort of Council of Elders so that their advice could be officially sought and obtained. What may seem new, original and desirable to a young man, often proves to be an old idea that others have found unworkable. Those whose memories stretch far and whose experience has been great are too valuable to be without office of some sort.

As is usual at such affairs some (considerable) time was spent in following the scriptural advice "Be filled with the spirit." Then, when loquacity had developed to a point where the room sounded like a combination of Babel and Bedlam, we adjourned to the dining room. The head table was graced by the presence of the lay members of the Board (who also were being honoured) and by other V.I.P.s, the two most prominent being Pat himself and Chief Justice Williams.

The Minister of Health spoke briefly and pleasantly and then took his departure so that Her Majesty's business might not suffer by his absence, for the local parliament was in session. Walter Tisdale, who presided, performed his functions smoothly. The speech of the evening came from the lips and from the heart of the Chief Justice.

His Lordship, it would appear, lays claim to Irish blood. He spoke, as I remember it, of the barbarous environment in which St. Patrick was born and spent his earliest days. He mentioned, if my memory serves me, that the youth was sent abroad to gather culture and learning whence he returned to enlighten and civilize (at least as far as could be done) the uncouth natives of his motherland. The Chief Justice also dwelt upon the significance of the name Patrick and traced its origin to "pater" so that, properly speaking, Pat McNulty is Father McNulty.

I am not sure if he proceeded, as he logically could have done, to point out that if Pat isn't (and he isn't) the Father of M.M.S., he has been its step-father or foster-father and has lavished upon it

all the thought and attention that could be claimed by the fruit of his own (mental) loins.

Now one does not argue with any of Her Majesty's Justices and certainly not with a Chief Justice, and more especially not upon such an occasion. But I must admit that I was surprised to see the bias of blood reveal itself in one of such legal eminence and such personal worthiness as the Chief Justice. It is common knowledge (in Scotland at least) that St. Patrick was born and educated in the refined and cultured atmosphere of Old Caledonia stern and wild. From this happy land of brains and brawn he sallied forth to convert the pagans on the adjoining island; and, however he ranked as a Scot, he was so much better than anyone in Ireland that they made a saint out of him! (I had to get that off my chest for the honour of Scotland).

But there was much more in the speech made by the Chief Justice. He spoke of Pat as a man and as a friend; and the warmth and sincerity of his words found a response in every breast. He spoke of Pat as a skillful doctor (and so he is) and as a good man which he also is and which is the highest praise anyone can hope to win. For with Pat his yea is yea, and his nay is nay, and so everyone knows it to be.

There was musical entertainment also. Ross Cooper and Carl Henneberg played a number of selections on two pianos. It was most enjoyable. Oliver Waugh, beside whom I was seated, admitted that, if he looked exophthalmic, it was out of envy at their dexterity. It is strange how all of us find enviable an accomplishment which often means little to its possessor. Here was one who, with a scalpel, could do what few could do, longing for the possession of a skill that thousands enjoy.

To me, at least, this exhibition of two-piano playing was more remarkable than if an orchestra had been before me. Perhaps there is a feeling that in a large body of musicians some may err and the ordinary listener be unaware of the fault. Or perhaps it was because two people whom we knew were showing familiarity with techniques which we did not know them to possess. As I listened I felt certain that in vain would anyone seek in them dysmetria, dyssynergia, dysdiadochokinesia, or amusia. Here were beyond question, if not two hearts, at least two cerebella, four Rolandic Areas, that beat as one.

Then there was a gentleman (not of our profession) who lifted up his voice in song. Because it was St. Patrick's Eve and the guest of honour was another Patrick, he sang the praises of various Irish colleens and then, heavens knows for what reason, he gave us "Woman is Fickle" in Italian. Perhaps he regarded this as a salutary antidote to the nice things he had said in English, and chose Italian so that he might not too obviously contradict himself.

The high point of the evening was the presentation of various gifts all well chosen to stir the memory. First there was a watch, a gentle reminder that Pat had not been outstanding for his punctuality (or so I was told), then an enlarged photograph of Pat looking tremendously Churchillian as he "turned the first sod." And then came the "piece de resistance"—a model of the "House that Pat Built" which served as a humidor.

No one who is eloquent in his thanks can be sincere. Indeed, the failure to find words, the difficulty in utterance, the strangled speech that comes from a throat tightened by emotion—these form the true eloquence of the heart-touched and the grateful. Pat stood speechless, and sightless also for his eyes were brimming; and his friends covered his discomfort by loud and hearty applause till he had regained control of himself.

Then he thanked all those who had shown their friendship, not only then and in that tangible way but all those who through the years had worked with him and whom, he declared, were

as worthy of honour—indeed more so—than was he himself.

I left shortly afterwards. The singing gentleman, his conscience set at rest by his Italian reference to the fickleness of woman, was back at his old trick of praising the virtue, beauty, loyalty, devotion, etc., of the maidens of Ireland.

That old philosopher, the Son of Sirach, found little good to say of women. "He that taketh hold of her is as one that graspeth a scorpion." "From woman was the beginning of sin, and because of her we all die." "All malice is but little to the malice of a woman" and so on. He was an old misogynist who seems to have held the same view as Petrarch who said that there were no good women, only some were worse than others.

But he looked upon wine differently. "Wine of life," he asks "is there to a man that is without wine? . . . it hath been created to make men glad." "Wine drunk in season and to satisfy is a joy of the heart." I had half a glass of sherry. The remaining bottles were being emptied when I left and no one had an unkind word for anyone else.

March 18, 1954.

To the President, Executive
and All Members,
Manitoba Medical Association,
604 Medical Arts Bldg.,
Winnipeg, Manitoba.

Words fail me to express my joy, my satisfaction and my gratitude to you all for that wonderful testimonial dinner. I will never forget it. Furthermore, for the presentation of the watch and chain, the humidor and the picture. One would have been plenty. I do not know which one I would wish to surrender. The humidor and the watch will be well used and will always be before my eyes as a reminder of 16th of March, 1954.

Again, Mr. President, would you please convey to your Executive and members my sincere thanks.

Yours truly

"Pat"

P. H. McNulty, M.D.

Letter to the Editor

Public Relations and the Medical Profession

In the final analysis the acceptance or rejection of a State Medical Health Service will be largely influenced by an informed public. The key word is "informed."

Upon organized medical societies and agencies falls the important burden of informing the general public regarding problems involved in the provision of health care—information which only the medical profession can provide. To what extent are we succeeding in getting our message

across?

Mass communication media: radio, the press, television, carry masses of material about health matters. Most of this deals with the subject of disease itself. Practically none of this material deals with the problems involved in a transference of responsibility (for the detection and treatment of disease) from the individual doctor to the state. On occasion when "doctors" are discussed in communication media, a slanted and distorted version is presented as witness the recent local headlines about "money-hungry doctors" appearing in both of the Winnipeg daily newspapers.

It is high time—perhaps even past high time—that we recognized that the field of public relations is a complicated professional subject that should be in the hands of public relations experts and not handled as a minor committee chore by a doctor, busy with his own professional problems. The editing, the timing, the phrasing of communication releases are highly technical matters that must include an intimate knowledge of mass communication media. This definitely belongs to the field of the expert; not to the conscientious amateur. The cost of such professional advice may seem, to some, considerable, but the cost would be picayune in comparison to the incalculable damage resulting from the present laissez-faire methods.

Since the public must be informed adequately and objectively about our problems, let us have this job handled by the experts.

Yours truly,

Alan A. Klass, M.D.

Manitoba's Medical Men VII. Municipal Doctors

During the depression, there were areas in Manitoba in which a doctor could not make a living. It became necessary for the Municipalities to guarantee an annual salary in order to attract a physician in their district. This arrangement finally culminated in what is now known as the "municipal doctor" and the Municipal Doctor's Contract, which sets out the salary, duties and formalities for the engagement and termination thereof.

The municipal contract was arranged with representatives of the municipalities and a committee of the M.M.A. This contract was fair to both the employer and the employee, but, of necessity, the medical man remained essentially a hired man of the municipal council. The disadvantages of a doctor engaging "as a municipal doctor" were foreseen at that time. Very recently, the M.M.A. was interviewed by a municipal doctor, who was having difficulty with his municipality, and who felt that he was being unfairly treated by being asked to resign. The fact is that he was given notice to quit on grounds that were, in his opinion, insufficient.

It is obvious that a medical man cannot press his services upon an unwilling population, and it should appear evident that the best way to engage in practice is as a private practitioner. That position the M.M.A. has always taken, although when some of its members choose to become municipal doctors, it will do all in its power to see that the provisions of the contract are fulfilled.

L. A. Sigurdson, M.D.

Tenth Physicians' Art Salon Opens June 14th, Vancouver

All Canadian physicians and medical undergraduates with art or photography as hobbies are cordially invited to exhibit at the 10th Annual Physicians' Art Salon to be held in conjunction with the Canadian Medical Association Convention at the Hotel Vancouver, June 14-18.

Entries in the three divisions, Fine Art, Monochrome Photography, and Colour Transparencies will be hung and judged for awards by an outstanding jury of selection. Members of this panel to be announced shortly.

New Fine Art Classification

The Physicians' Art Salon Committee has made some modifications in the Fine Art Section. This class is now subdivided into traditional, contemporary, and portrait categories with prizes in each. Any medium, oil, tempera, gouache, water colour, charcoal, pencil, or etching, is acceptable in each category.

Because of space limitations, entries permitted each exhibitor have been reduced to three fine art, four monochromes, and three colour transparencies. Physicians can enter up to the limit in one or more classes, but only two entries are allowed in any one subdivision of Fine Art.

10th Anniversary

Organized to encourage creative hobbies among the profession, the Physicians' Art Salon marks its tenth year as a forum where artistically-gifted physicians can exhibit their hobbies before an interested medical audience. Still sponsored by Frank W. Horner Limited, it is expected to attract a large number of enthusiasts in the various media and to be viewed by hundreds of convention delegates.

To Enter

Any physician or medical undergraduate interested in submitting work may obtain an entry form with details by writing the sponsor at P.O. Box 959, Montreal. A short note or post card will do. All expenses, including transportation of exhibits to and from Vancouver, are taken care of by Horner.

Deadline

Completed entry forms must be received before May 28th to insure proper listing. Exhibitors are also requested to ship entries soon enough to allow for possible delays in express or parcel post. Full shipping instructions appear on the entry form along with addressed labels.

Art Salon Calendar

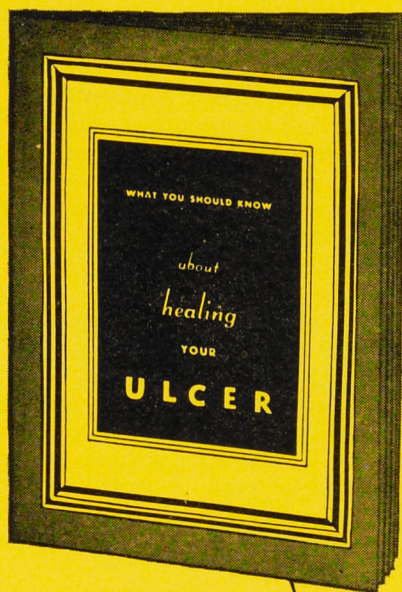
A novel feature of the Salon, the Physicians' Art Salon Calendar will again be prepared by Frank W. Horner Limited. The calendar reproduces award-winning work in full colour and is distributed to all physicians in Canada, with the compliments of the Company.

Non-Caloric Liquid Sweetener

A new non-caloric liquid sweetener called "Sweeta" has been made available to the public by Squibb of Canada. It is the most concentrated soluble saccharin marketed today—a 24 cc. bottle equals four and one-half pounds of sugar in sweetness. Advantages to patients on restricted sugar intake diets include no unpleasant after-taste, and the fact that Squibb's new sweetener may be boiled, baked or frozen without losing any of its original properties.

Situation Available

Snow Lake, Manitoba, requires medical doctor. Employment by mining company to look after employees. Dependents and local residents are private patients. Modern housing, all conveniences. Ample recreation and social facilities. Write Dr. A. A. Yauniskis, Snow Lake, Man.



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Amphojel, (Aluminum Hydroxide Gel, Alumina Gel)—Amphojel Unflavoured, Amphojel with Mineral Oil, Amphojel with Magnesium Trisilicate, Amphojel Tablets, Phosphaljel, (Aluminum Phosphate Gel)—for marginal ulcer.

For your peptic ulcer patients

• This free booklet—prepared by staff members of the New York Hospital, Cornell Medical Center—saves you time and effort in managing your peptic ulcer patients.

The booklet emphasizes the importance of co-operation with you. It tells your patient what he needs to know about his ulcer. To obtain copies, just fill in and mail the coupon below.

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Social News

Reported by K. Borthwick-Leslie, M.D.

Now that the Easter week-end is over with time to rest after the Refresher Post Graduate (called by some "Cultural") Course, as usual Gordon is hounding your Social Editor. The Profession has been unusually quiet by the way, even the Stork Department.

Speaking of the "Cultural" Course, congratulations to the committee in charge. The attendance was unusually good, the programmes and speakers excellent, and I am sure enjoyed by all. One glaring fact stands out, **We Need An Auditorium With Decent Acoustics.** What about a Manitoba Academy of Medicine? Surely our wealthy (?) Medical Men can support one—even though the new plans at the College, I understand, do promise better facilities than at present.

I couldn't make the wind-up banquet but have done a lot of listening since. Why not a Buffet, no speeches and the ability to wander about renewing acquaintances with old friends and associates instead of parking at a table talking to people one sees every day, listening to men one hears every day? O.K. so I'm safe, a crippled female, wearing glasses—you simply cannot strike me.

* * *

What a treat to gaze upon the happy relaxed faces of Dr. and Mrs. Con Strong, picture taken while holidaying at Rancho Corona, Tucson, Arizona, Mexico, to Winnipeg via the west coast. Am not sure, but hear rumors that Con became so attached to the Arab horses that one was bedded down in the rumble seat and brought home.

* * *

Dr. Paul L'Heureux, St. Boniface Hospital, has picked himself distinguished company on his appointment to the "Committee of Liquor Probe"—re our antiquated Manitoba Liquor situation. I hope his views on the subject are as human as the expression on his face in the Tribune.

* * *

Speaking of expressions, Dr. Trainor's picture in the same paper surely depicts extreme optimism and affability re the problem of National Health—More Power to his "roundly denouncing" of same.

I do not remember welcoming Dr. R. A. Christie of Inverness, Scotland, who has taken over the duties of medical director of the Red River Health Unit at Steinbach, Man. Upon receiving his Public Health degree for Canada, Dr. Christie, I understand, plans on practicing in Manitoba.

* * *

Dr. and Mrs. Lyle T. McDonald (nee Margaret Chown) are happy to announce the arrival of Brian Gordon, December 28.

Thank you so much for the note, Margaret, it helps a lot. I'm sorry I missed yours before, along with numerous others.

* * *

Dr. Ida Armstrong, having attended the Annual General Assembly in New Orleans, reports that the meetings and speakers were so excellent that she really attended the meetings, almost to the exclusion of exploring the hot spots of the town. However, I gather from comments that a few of these can be interesting too.

* * *

Dr. and Mrs. Archie Gray announce the arrival of their third daughter at Carrington, North Dakota.

* * *

Dr. and Mrs. J. B. R. Cosgrove (nee Alison Chown) announce the arrival of their son, April 5, 1954.

* * *

Dr. and Mrs. J. A. Peters announce the birth of their second son, Paul Erick, March 27.

* * *

Dr. and Mrs. J. M. Huot are happy to announce the birth of Yvonne, March 19, 1954.

* * *

Dr. and Mrs. E. S. Bryngelson announce the birth of their second son, John Frederick.



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DROPS

The most **CONVENIENT,**

ACCEPTABLE

and

ECONOMICAL

way to administer

MULTIVITAMINS

to **INFANTS**

and **CHILDREN**

Each daily dose contains

VITAMIN D	1,000 Int. Units
VITAMIN A	2,000 Int. Units
VITAMIN C	30 mg.
VITAMIN B ₁	1 mg.
RIBOFLAVIN (B ₂)	1 mg.
NIACINAMIDE	2.5 mg.
SODIUM IODIDE	0.04 mg.

DOSAGE

5 drops daily.

MODES OF ISSUE

8 cc.
32 days' supply
15 cc.
60 days' supply
30 cc.
120 days' supply

COST PER DAY

3½, 4 or 4½ cents
depending on size
of bottle.

Children of all ages welcome these agreeably flavoured, aqueous drops, whether given directly on to the tongue or mixed with formula, fruit juices or other liquids.

Charles E. Frosst & Co.

MONTREAL

CANADA

Association Page

Reported by M. T. Macfarland, M.D.

M.D. (Man.) 1954

The spring of each year marks the occasion when in each of the Medical Colleges of Canada the farewell parties, examination ordeal and submission of thesis is followed by convocation for the awarding of honours and degrees. The "calling together" at which the faculty members indicate to the assembled students, parents and guests, they have done what they could to provide the background against which the future activities of the students will be measured is an important event. The speakers will remind them of the tradition of the University whose stamp is being placed upon them, and will remind that the function of a University is not to find positions for them, but should have fitted them for a position in society. There will, of course, also be the exhortation to "put down the fiddle and the bow, and take up the shovel and the hoe."

To those who receive "M.D. (Man.) 1954" the Association, representative of the voluntary organization of the medical profession, sends greetings and every good wish for future success.

Testimonial Dinner to Dr. P. H. McNulty and Board of Trustees, Manitoba Medical Service

To mark the retirement from the Board of several members, including Dr. P. H. McNulty, and to recognize the valuable contribution in time and energy on the part of non-medical members of the Board, a reception-dinner was held, following the meeting of M.M.A. Executive Committee and the Annual Meeting of the Manitoba Medical Service, on March 16th in the Macdonald and Jade rooms of the Fort Garry Hotel. More than one hundred and fifty persons were present and the following persons were seated at the head table: Dr. W. F. Tisdale, Dr. P. H. McNulty, The Hon. (Chief Justice) E. K. Williams, Hon. F. C. Bell, Dr. C. W. Burns, D. W. Richmond, F. H. Keefe, H. D'Eschambault, J. J. Carson, R. Barrett, B. Sutherland, Dr. J. C. MacMaster, Dr. J. B. Rollitt, Dr. P. H. T. Thorlakson.

The gathering was presided over by the President who introduced Hon. F. C. Bell, Minister of Health and Public Welfare, and later called on Doctors Henneberg and R. H. Cooper for a piano duet. A vote of thanks to the lay members of the Board was proposed by Doctor C. E. Corrigan and responded to by Mr. D. W. Richmond. The service of retiring medical members was acknowledged by the President who then asked Mr. Geo. Kent to sing, accompanied by Mr. Lincoln. Chief Justice E. K. Williams extolled the virtues of the retiring chairman of the Board, and with appropriate words the President requested Dr. McNulty to accept an

enlarged photo of himself turning the sod, a miniature in selected wood specimens of the Manitoba Medical Service building, and a suitably engraved pocket watch. Dr. McNulty replied briefly and feelingly. The occasion ended by the singing of "For he's a jolly good fellow" and further songs by Mr. Kent.

Combined District Meeting

A combined meeting of Brandon and District Medical Association, Northern and Northwestern District Medical Societies was held at Prince Edward Hotel, Brandon, on Wednesday, February 24th, 1954.

Dinner was served to a large gathering, representative of the three groups, following which the chairman, Dr. W. J. Sharman, called on Mrs. W. F. Tisdale to make a brief announcement concerning the Annual Fall Meeting of the Manitoba Medical Association, and introduced Dr. Jon Prag, newly appointed Director of the Provincial Laboratory, Winnipeg.

At the business and scientific session which followed, the chairman's remarks were given, in verse, by Dr. W. J. Sharman, Clanwilliam.

Dr. J. A. Findlay, Brandon, was named representative to the Manitoba Medical Association Nominating Committee from Brandon and District Medical Association. Dr. M. Potoski, Dauphin, from Northern District Medical Society, and Dr. W. K. Hames, Kenton, from Northwest District Medical Society.

Scientific Session

The following doctors were present at the Scientific Session:

Brandon—J. B. Baker, W. A. Bigelow, M. E. Bristow, J. S. Brown, R. P. Cromarty, E. Cziller, J. A. Findlay, F. Fjeldsted, W. Forester, J. Hendry, W. P. Hirsch, H. M. McIntyre, J. M. McMahon, J. M. Matheson, F. J. E. Purdie, A. H. Povah, H. S. Sharpe, V. J. H. Sharpe, E. J. Skafel.

Carberry—G. T. McNeill, C. H. Murphy, W. H. Patterson.

Clanwilliam—W. J. Sharman.

Dauphin—H. Little, M. Potoski, J. M. Wood.

Ethelbert—L. M. Hokanson.

Hamiota—J. E. Hudson.

Kenton—W. K. Hames.

Minnedosa—H. C. Stevenson.

Neepawa—H. Chochinov.

Oak River—A. J. Elliott.

Reston—D. E. Bradley.

Rivers—Major Sartorelli, G. I. Wortzman.

Shilo—Major Clark.

Virden—W. A. Gorrie, J. R. Monteith.

Wawanesa—N. Kester.

Winnipeg—R. M. Creighton, M. T. Macfarland, J. Prag, W. F. Tisdale.

Scientific Programme

Dr. V. J. H. Sharpe, Brandon, spoke on the subject of "Addison's Disease." Discussion was led by Dr. J. R. Monteith.

Dr. W. Forster spoke on "Schizophrenia in Childhood," illustrated by a tape recording.

Dr. W. P. Hirsch, Brandon, spoke on "Uterine Inertia." Discussion was opened by H. C. Stevenson, Minnedosa.

Dr. W. F. Tisdale, President, and Doctor M. T. Macfarland, Executive Secretary, brought greetings on behalf of the Manitoba Medical Association while Doctors J. A. Findlay and J. E. Hudson mentioned some highlights of the Executive Committee meetings. Dr. M. Potoski invited the combined group to a meeting to be held on or about May 20th at Dauphin.

Entertainment was provided for the ladies and coffee was served to end a very successful gathering.

Victorian Order of Nurses

Illness, Patients and Money

"In view of the growing importance of home care of the sick, we are convinced that a visiting nurse service has a role to play commensurate with that of the hospital. Major factors that tend to re-emphasize the home as an important place where medical care may be rendered are:

1. The increasing cost of hospitalization.
2. The growing number of older persons with chronic disease, many of whom may be adequately cared for at home with proper planning and services.
3. The development of potent therapeutic agents such as the antibiotics enabling the physician to treat cases at home, in which formerly hospitalization was necessary.
4. Recognition of the importance of social and psychological factors in illness.

Until recently little medical judgment was required to decide on hospitalization of the patient. Nearly always, circumstances made it appear that the hospital was best. Now, in view of the factors just mentioned, and others, the physician must more seriously consider treating the patient at home. Where a visiting nurse service is available more judicious and perhaps limited use of hospital service is possible.

Nursing care is frequently needed during convalescence, for example, a recent study by J. Downes (Millbank Memorial Fund) of acute and chronic illness after discharge from hospital, showed an average of six days of bed disability

at home for all forms of acute illness, and thirty-five days of bed disability for chronic disease.

Doctors realize the let-down most of the patients experience upon leaving the hospital where they have received close supervision with its supportive care and advice. Visiting nurses if utilized might provide a continuation of the care and support, and so shorten the disability. Many patients and their families could be helped to adjust to this phase of recovery.

Hospital administrators, perhaps more keenly aware of cost factors, have begun to use visiting nurse service to shorten hospital stay, and thus help to reduce the cost of medical care. In this way the patients who carry Blue Cross benefits are often able to reserve some of these benefits for a probable illness later in the year, thus leaving them with a feeling of more security.

An example of a hospital administrator using a home visiting nursing service was the first Hospital Home Care Plan begun in Canada by the Reddy Memorial Hospital, Montreal, July 1, 1950. The hospital uses its own services and resources except for nursing care. This is bought by the hospital from the local branch of the Victorian Order of Nurses at cost, on a per visit basis.

*Quoted from the Journal of the American Medical Association, June 7, 1952, Vol. 149, p.p. 554-557.

Winnipeg Medical Society

Reported by R. H. McFarlane

Report of Nominating Committee Nominations for Officers — Winnipeg Medical Society — 1953-1954

President

Dr. Hartley F. Smith

Vice-President

Dr. A. R. Birt

Dr. Earl Stephenson

Secretary

Dr. Chas. Hollenberg

Dr. A. W. McCulloch

Treasurer

Dr. A. T. Gowron

Dr. D. L. Kippen

Trustee

Dr. A. G. Henderson

Dr. Dwight Parkinson

Dr. Hartley Smith is currently Vice-President of the Society and it is not now the policy of the nominating committee to attempt to find an opposing candidate for President. However, nominations from the floor at the Annual Meeting for this or any other office are, of course, in order.

Honorary Life Membership

The following will be presented for life membership in the Society:

Dr. D. F. McIntyre

Dr. C. M. Strong

Dr. E. J. Washington

Dr. N. W. Warner

College of Physicians and Surgeons of Manitoba

Registration Committee

November 25, 1953

Enabling Certificates Deferred

Alexander Frederick Ferre, M.D., U. Voronesh, 1941.

William Singer, M.D., U. Innsbruck, 1947.

Enabling Certificate Granted

Chiu-chen Wang, M.D., National Kwei-yang Medical College, 1948.

Certificate of Registration Deferred

Gerd Asche, M.D., U. Bonn, 1951; L.M.C.C., 1953.

Certificates of Registration Granted

Glen Harrison Lowther, M.B., Ch.B., U. Glasgow, 1949.

Arthur Joseph Glazebrook, M.R.C.S., England, 1934; L.R.C.P., London, 1934; M.B., B.S., U. London, 1943; M.D., U. London, 1946; M.R.C.P., Edinburgh, 1946.

Werner Paul Hirsch, M.R.C.S., England, 1940; L.R.C.P., London, 1940; M.R.C.O.G., 1946; F.R.C.S., Edinburgh, 1947.

Lajos Kovacs, M.D., Royal Hungarian U. Pozmany Peter in Budapest, 1931; L.M.C.C., 1953.

Richard Joseph Walton, M.B., Ch.B., U. New Zealand, 1939; D.M.R., U. London, 1949; D.M. R.T., R.C.P.S., England, 1950.

Certificates of Licence (Temporary) Granted

Andrew Parker Muir, M.B., Ch.B., U. Glasgow, 1930; L.M.C.C., 1953.

Jean Alexandre Dupont, M.D., Laval U., 1953; L.M.C.C., 1953.

Harry Schechter, M.B., Ch.B., U. Liverpool, 1950.

Brian McQuillan Marshall, M.D., U. Toronto, 1950; L.M.C.C., 1950.

Specialist Committee

January 7, 1954

The fifth and final meeting of the College of Physicians and Surgeons Committee to set up a Specialist Register was held at 7 p.m., on Thursday, January 7, 1954, in the Medical Arts Club Rooms.

Present were: Dr. C. H. A. Walton, Chairman, C.P. & S.; Dr. F. G. Allison, M.M.A.; Dr. B. D. Best, Faculty of Medicine, U. of Man.; Dr. N. L. Elvin, Faculty of Medicine, U. of Man., and Dr. M. T. Macfarland, Registrar, C.P. & S., ex-officio.

The applications of 42 members with Royal College standing, whose names had been entered on the Specialist Register since the last meeting of the Committee held October 9, 1953, were presented.

Of the twenty applications considered, nine were granted specialist registration, nine were deferred, pending receipt of additional information,

and two were refused because their qualifications were considered inadequate under the By-law of the College of Physicians and Surgeons of Manitoba.

Registration Committee

January 13, 1954

Enabling Certificates Deferred

Wolfgang Schlichther, M.D., U. Innsbruck, 1948.

Edward Shih-Chung Chan, M.D., National Medical College of Shanghai, 1949.

Alexander Frederick Ferre, M.D., U. Voronesh, 1941.

William Singer, M.D., U. Innsbruck, 1947.

Julius Adolf Blanck, M.D., Dorpat U., 1927.

Antonina Nenadkevich, M.D., State Medical Institute of Kuban, City of Krasnodar, 1929.

Eugenijus Gedgaudas, M.D., U. Munich, 1948.

Elvira Lili Kukuk (nee Werner), M.D., U. Jena, 1949.

Alexander Johannes Bozyk, M.D., U. Vienna, 1944.

Certificates of Registration Deferred

Gerd Asche, M.D., Bonn U., 1951; L.M.C.C., 1953.

Ralph Fredman, L.R.C.P., Edinburgh, 1941; L.R.C.S., Edinburgh, 1941; L.R.F.P.S., Glasgow, 1941.

Certificates of Registration Confirmed

King-Shue Luke, M.D., National Hsiang-Ya Medical College, 1945; L.M.C.C., 1953.

Herbert Benno Lang, M.D., Innsbruck U., 1945; L.M.C.C., 1953.

Ruth Whitfield, M.D., C.M., Queen's U., 1949; L.M.C.C., 1949; D.A., McGill U., 1953.

Samuel Tze-Tao Chang, M.D., National Medical College of Shanghai, 1940; M. Med. Sc., Inter. Med., U. Pennsylvania, 1948; L.M.C.C., 1953.

Certificates of Registration Granted

Gustaaf Adolf Mertens, M.D., U. Leiden, 1950; L.M.C.C., 1953.

Ivan Thomas Beck, M.D., U. Geneva, 1949; L.M.C.C., 1953.

Michael Graham Saunders, M.B., Ch.B., Victoria U. of Manchester, 1944.

John Adrian Henry Collins, M.R.C.S., England, 1942; L.R.C.P., London, 1942; M.B., B. Chir., U. Cambridge, 1943; M.A., U. Cambridge, 1946; M.R.C.P., London, 1948.

Raymond Louis Aristide Gouges-d'Agincourt, M.R.C.S., England, 1943; L.R.C.P., London, 1943; F.R.C.S., England, 1953.

Francis Apang Chow-Quan, M.D., Howard U., 1950; L.M.C.C., 1953.

Certificate of Licence (Temporary) Deferred

Victor Zaitzeff, M.D., l'Aurore U., 1947; L.M.C.C., 1953.

Registration Committee

January 27, 1954

Enabling Certificate Deferred

Dieter Kirchheim, M.D., Johann Wolfgang Goethe U., 1951.

Enabling Certificates Granted

Daisy Corbin (Sih-En Feng), M.D., National Medical College of Shanghai, 1938.

Wladyslaw Nakielny, M.D., U. Bern, 1951.

Certificate of Licence (Temporary) Granted

James McElroy, M.D., C.M., McGill U., 1949; L.M.C.C., 1950.

Printing of Application Forms

The Registrar presented a draft of a suggested application form. The Committee studied the information requested, and suggested several changes. The Registrar was directed to proceed with the printing of the application forms.

Registration Committee

February 25, 1954

Enabling Certificates Granted

Peter Henry Mierau, M.D., U. Odessa, 1939.

Margaret Loewen, M.D., U. Odessa, 1939; M.D., U. Rostock, 1948.

Wolfgang Schlichther, M.D., U. Innsbruck, 1942.

Karl Hugo Erich Krueger, M.D., U. Danzig, 1941.

Pieter De Jong, M.D., U. Leiden, 1950.

Certificate of Registration Deferred

Ralph Fredman, L.R.C.P., Edinburgh, 1941; L.R.C.S., Edinburgh, 1941; L.R.F.P.S., Glasgow, 1941.

Certificates of Registration Confirmed

Jean De Witt Fox, M.D., College of Medicine, Evangelists, 1945; L.M.C.C., 1950.

John Robert Stalker Shields, M.B., Ch.B., U. Birmingham, 1941; D.A., R.C.P.S., England, 1948.

John Allan Dean Thompson, M.D., U. Alberta, 1942; L.M.C.C., 1943; D.H.A., U. Toronto, 1950.

Certificates of Registration Granted

James Bennett Squire, M.D., C.M., Dalhousie U., 1941; L.M.C.C., 1951.

Elca Graf, M.D., U. Modena, 1938; L.M.C.C., 1941; Angus William Coshan, M.B., B.S., U. Madras, 1945; L.M.C.C., 1953.

Bernard Derbach, M.D., U. Ottawa, 1950; L.M.C.C., 1952.

Certificate of Licence (Temporary) Granted

Victor Zaitzeff, M.D., l'Aurore U., 1947; L.M.C.C., 1953.

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Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1954		1953		Total	
	Feb. 21 to Mar. 20, '54	Jan. 24 to Feb. 20, '54	Feb. 22 to Mar. 21, '53	Jan. 25 to Mar. 21, '53	Jan. 1 to Mar. 20, '54	Jan. 1 to Mar. 21, '53
Anterior Poliomyelitis	6	8	10	6	20	22
Chickenpox	182	187	114	148	561	438
Diphtheria	0	0	0	0	0	3
Diarrhoea and Enteritis, under 1 yr.	14	14	10	11	36	22
Diphtheria Carriers	0	0	0	0	0	0
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	1	3	1	2	4	3
Erysipelas	3	3	4	5	7	9
Encephalitis	0	0	0	0	0	0
Influenza	7	7	36	12	18	49
Measles	155	81	341	699	293	1579
Measles—German	1	5	6	7	6	18
Meningococcal Meningitis	0	2	6	1	2	11
Mumps	197	150	107	188	409	422
Ophthalmia Neonatorum	0	0	0	0	0	0
Puerperal Fever	0	0	0	0	0	0
Scarlet Fever	63	70	29	66	194	135
Septic Sore Throat	11	3	3	2	19	5
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0
Trachoma	0	0	0	0	0	0
Tuberculosis	52	31	53	58	90	123
Typhoid Fever	0	2	0	0	2	0
Typhoid Paratyphoid	0	0	0	0	0	0
Typhoid Carriers	0	0	0	0	0	0
Undulant Fever	1	0	0	0	1	0
Whooping Cough	11	5	5	16	20	29
Gonorrhoea	100	95	72	84	296	266
Syphilis	7	8	11	2	18	20
Infectious Jaundice	29	33	40	22	76	74
Tularemia	0	0	1	0	0	1

Four-week Period February 21st to March 20th, 1954

***DEATHS FROM REPORTABLE DISEASES**

For the Month of March, 1954

DISEASES (White Cases Only)	*809,000 Manitoba	*861,000 Saskatchewan	*3,825,000 Ontario	2,952,000 Minnesota
*Approximate population.				
Anterior Poliomyelitis	6	8	7	8
Chickenpox	182	219	2040	—
Diarrhoea and Enteritis Under 1 yr.	14	9	—	—
Diphtheria	—	1	3	7
Diphtheria Carriers	—	—	—	—
Dysentery—Bacillary	1	1	39	12
Dysentery—Amoebic	—	—	—	1
Encephalitis Epidemica	—	—	—	2
Erysipelas	3	2	4	—
Hansen's Disease	—	—	—	1
Influenza	7	2	3	14
Infectious Jaundice	29	38	162	307
Measles	155	72	1231	167
German Measles	1	9	101	—
Meningitis Meningococcus	—	—	7	5
Mumps	197	581	1201	—
Ophthal. Neonat.	—	—	—	—
Puerperal Fever	—	1	—	—
Scarlet Fever	63	44	613	255
Septic Sore Throat	11	25	6	32
Smallpox	—	—	—	—
Tetanus	—	—	—	—
Trachoma	—	—	—	—
Tuberculosis	52	42	104	132
Tularemia	—	—	—	—
Typhoid Fever	—	9	4	—
Typh. Para.-Typhoid	—	—	1	—
Typhoid Carriers	—	—	—	—
Undulant Fever	1	—	1	13
Whooping Cough	11	24	188	49
Gonorrhoea	100	—	187	—
Syphilis	7	—	82	—

Urban—Cancer, 65; Pneumonia, Lobar (490), 3; Pneumonia (other forms), 2; Syphilis, 1; Tuberculosis, 2; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 22. Other deaths over 1 year, 203. Stillbirths, 13. Total, 238.

Rural—Cancer, 24; Influenza, 1; Pneumonia, Lobar, 4; Pneumonia (other forms), 13; Pneumonia of newborn, 1; syphilis, 1; Tuberculosis, 3; Diarrhoea and Enteritis, 2; Septic Sore Throat, 1. Other deaths under 1 year, 14. Other deaths over 1 year, 167. Stillbirths, 11. Total, 192.

Indians—Cancer, 1; Influenza, 1; Pneumonia (other forms), 1; Pneumonia of newborn, 1. Other deaths under 1 year, 2. Other deaths over 1 year, 1. Stillbirths, 0. Total, 3.

Poliomyelitis—Only a few sporadic cases being reported and about one-third of these with paralysis. One five months old baby died.

Rabies in Animals—We may as well accept the fact that this infection is present in Manitoba, especially in our wild life and it will take years to wipe it out. In fact New York State has never been able to do so. However, if the population becomes educated and takes sensible precautions regarding animals which are not acting *naturally* there is little danger to humans. A rabid rabbit attacked a dog at Reston!

Streptococcal Infections—Scarlet fever and septic sore throat up a little.

Venereal Diseases about the same as last year.

Detailmen's Directory

Representing Review Advertisers in this issue, whose names are not listed under a business address.

Abbott Laboratories

G. J. Bowen	44 559
R. G. (Bud) Harman	507 509
Alan (Al) M. Grant	207 289
Bruce Hunter	42 5263

Allen & Hanburys Co.

H. W. Heaslip	64 596
E. M. Tackaberry	404 184

Ayerst, McKenna and Harrison

W. R. Card	407 115
C. G. Savage	34 558
Fern Savoie	207 324
R. A. E. Perrin	424 703

British Drug Houses

F. J. Burke	444 991
W. B. Pipes	42 2023

Ciba Company Ltd.

Fred Ruppel	422 769
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Connaught Laboratories

Brathwaites Ltd.	922 635
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Frosst, Chas. E.

W. M. Loughheed	403 963
W. J. McGurran	208 231
E. R. Mitchell	402 132

Mead Johnson

George Moore	405 815
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Merck & Co.

W. G. Ball	45 702
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Ortho Pharmaceutical Corp.

G. H. Hofer	42 3000
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Park, Davis & Co.

L. W. Curry	401 138
B. S. Fleury	404 441

Pfizer Canada

E. E. Conway	64 274
B. H. Horsfall	66 657

Sandoz Pharmaceuticals Ltd.

H. D. Robins	39 936
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G. D. Searle & Co.

Harry Chambers	506 558
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Schering Corp. Ltd.

Halsey Park	404 346
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Schmid, Julius

W. H. Davis	206 941
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Shuttleworth, E. B.

S. M. Fairclough	30 156
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Will, Chas R.

A. C. Payne	
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Winthrop-Stearns

R. M. Kelly	34 580
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Wyeth & Bro., John

A. W. Cumming	35 271
W. J. Tarbet	423 495

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